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Ralph Gildroy
Executive Director

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November 13, 1978

Dear Reader:

The following is a draft of the revised Health Systems Plan for Montana which will be submitted to the Governing Board of the Montana Health Systems Agency on Saturday, December 16. Changes resulting from future hearings and HSA Plan Development Committee discussions will be presented at that time.

Chapter 3 of the draft was reviewed in public hearing on September 28, 1978.

The first seven components of Chapter 4 will be reviewed on November 15, 1978.

The balance of Chapter 4, and all of Chapters 5 and 6 have gone through review and have been approved by the Governing Board.

The final public hearing on December 16, 1978 will review Chapters 1, 2, 4.10 (Mental Health), and the appendices of the draft.

Utilizing its task forces, subarea advisory councils and public meetings, the Montana Health Systems Agency has exerted every effort to develop this draft in concert with the residents of Montana. We sincerely hope that it meets with your approval.

Ralph Gildroy

RALPH GILDROY, Executive Director
Montana Health Systems Agency, Inc.

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SECOND ANNUAL HEALTH SYSTEMS PLAN

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EXECUTIVE SUMMARY

This document, entitled Montana Health Systems Plan - 1979, represents the development by the Montana Health Systems Agency (MHSA) of the Health Systems Plan (HSP) for the state. In accordance with the "National Health Planning and Resources Development Act of 1974", P.L. 93-641, the intent of this plan is to circumscribe and describe the Health Care Delivery System in Montana in 1985. It represents the first review and amendment of its first Health Systems Plan approved by the MHSA Governing Board in January, 1978.

Whereas the Health Systems Agency has responsibilities in planning, resource development and implementation, its Health Systems Plan is the basic resource document for decision making. It encompasses guidelines, review criteria, and MHSA policy statements.

The review process is Montana Health Systems Agency's primary mechanism for the encouragement of the types of health services to be delivered in Montana, services addressed in this plan. All institutions contemplating major capital expenditures, the development of new services, or the alteration of the number of currently licensed beds must be reviewed by the Health Systems Agency and the State Department of Health and Environmental Sciences (DHES). In these particular reviews the Montana Health Systems Agency is the body recommending to DHES for approval or disapproval. In the review of selected health programs for the Proposed Use of Federal Funds (PUFF) the Montana Health Systems Agency has approval/disapproval power. Consequently, the emphasis of the seven chapters of this Health Systems Plan are on the provision of reasonable criteria to be utilized as a basis for the prescribed decisions and recommendations. The principles used by MHSA in both its planning and review functions are listed in Chapter 2.

This Health Systems Plan contains the guidelines, criteria, and MHSA policy statements for twenty-two health services and three health problems. The first fifteen of the services were addressed in last year's (the first) Montana Health Systems Plan. These fifteen have been rewritten in a more comprehensible format which addresses, where appropriate, the national guidelines published in March, 1978.

Of the first fifteen services addressed, the following eight are classified as tertiary care services:

- Clinical Cardiovascular Laboratories & Cardiac Surgery Facilities
- Radiation Therapy
- Computerized Tomography (CT) Scanners
- End Stage Renal Disease Facilities
- Neonatal Intensive Care Units
- Poison Control Services
- Burn Care Programs
- Blood Banking

Being highly technical and very expensive, these services are characterized as affecting a very small percentage of the population. The Montana Health Systems Agency supports the development of three regional, tertiary centers in Montana - Billings, Great Falls and Missoula. Most of these services have already been rationally developed in these cities and are sufficient to meet the needs of Montanans through 1985. For most of these services, exceptions to the national guidelines are needed. Justifications for these exceptions are primarily founded on the provision of reasonable accessibility for Montana's residents.

The following table summarizes allocations, extant and proposed, for these tertiary services.

	Missoula	Kalispell	Great Falls	Butte	Bozeman	Helena	Billings
Clinical Cardiovascular Labs	X		X				X(2)[1]
Cardiac Surgery Facilities	X		Rec.				X
Radiation Therapy	X	Rec.[2] A	X	A[2]	A[2]	A[2]	X
Computerized Tomography (CT) Scanners	Head		Head & Body				Head & Body
End Stage Renal Disease Facilities	X		X			X	X
Neonatal Intensive Care Units	X	L[3]	X	L[3]	L[3]		X
Secondary Poison Information Services	X		X				X
Burn Care Programs	Rec.		X				X
Blood Banks	Sub. Center		X				X

[1] St. Vincent Hospital initiated cardiac catheterizations July, 1978.

[2] A - Cooperative Cancer Programs built around a cobalt-60 unit and performing primarily palliative treatments.

[3] L - Provides services to high risk mothers and infants, but is not recognized as a regional center.

Of those services classified as secondary, the following ten are addressed:

- General Hospital Acute Inpatient Care
- Critical Care (ICU/CCU) Units
- Acute Care Psychiatric Units
- Clinical Laboratory Services
- Diagnostic Imaging

- Long-Term Care Facilities
- Home Health Care
- Alcohol Services
- Drug Services
- Mental Health Services

The first three of these components deal directly with hospital services. Pertinent national guidelines have established resource standards of 4.0 beds per 1,000 population and an annual overall occupancy rate of 80 percent. Adverting to the first of these standards, the Montana Health Systems Plan uses a formula based on past hospital utilizations which indicates that Montana will have a bed to population ratio of 3.96 in 1985, if no additional beds are built. As to the second of the resource standards, the hospitals in Montana cannot be expected to achieve an overall occupancy rate of 80 percent. Montana hospitals are much smaller than those in most other states. A larger number of available beds is essential to adequate, community service. As an example, the daily occupancy rate of a 25 bed hospital may increase 20 percent as the result of a single automobile accident.

In considering the secondary components, consolidation of currently duplicated pediatric and obstetrical units in multi-hospital communities is suggested. Through this consolidation, Montana may be able to comply with the pertinent national guidelines.

The intent of the components on Clinical Laboratory and Diagnostic Imaging Services is the minimization of duplication whenever possible. These services are found in hospitals, clinics and individual physician offices.

Components dealing with Long-Term Care facilities and Home Health Care have been revised considerably from the first year Health Systems Plan. In this year's plan the Montana Health Systems Agency is fostering alternatives to skilled nursing facilities. The plan employs a guideline of 61 medically necessary beds per thousand elderly in any community (county) to estimate the 1985 bed need. Also suggested is a one-year moratorium on nursing home construction to temper the interest in facilities expansion. The Health Systems Agency supports the expansion of Home Health Care in Montana, but adds a caveat concerning the long-term viability of small agencies. This plan recommends that all new Home Health Care agencies be expected to carry an active case load of 150 clients.

The components for Alcohol, Drug and Mental Health Services address services which are administered by the state and receive at least part of their funding from the federal government. These components are developed from and are a summarization of those plans developed individually by the particular administrative agencies. Now that the Montana Health Systems Agency is fully designated, future federal funding will be dependent upon MHSA approval.

Chapter 5 of the plan addresses three segments of primary care now delivered in Montana:

- Primary Care Personnel
- Dental Personnel
- Emergency Medical Services

The first two are manpower studies in which are estimated the number of professionals practicing in the respective fields. The concept of job families is employed in addressing these areas. The intent is to indicate MHSA policy as to educational support programs and to define the role of National Health Service Corps in Montana.

The MHSA Emergency Medical Services component addresses another federal program utilizing federal funds. In the past, the Montana EMS has not developed a written plan. It has guided program development through its annual applications for federal funding. For the review of this program, the Montana Health Systems Agency has developed guidelines from the goals and objectives of the EMS annual applications.

The first of many, potential prevention programs, Preventive Dental Care Services, is addressed in Chapter 6. The MHSA supports the concept of fluoridation, but is cognizant that decisions on water supply fluoridation are a responsibility of the individual communities. The MHSA indicates its support for the expansion of prevention programs presently being implemented by the Dental Bureau of the Montana Department of Health and Environmental Sciences.

The final chapter, Chapter 7, addresses three general health problems in Montana - Heart Disease, Cancer and Alcoholism. These components suggest areas possible for the development of efforts in prevention and health education.

If, and when, Area Health Services Development Funds become available to the Montana Health Systems Agency, the above components should provide a basis for the allocation of these funds for programs initiation.

For additional background on the Montana Health Systems Agency, its purposes and functions, the annual report, "The Two Year Old", is available on request.

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CHAPTER 1

INTRODUCTION

1.0 Purpose and Use of the Health Systems Plan (HSP)

The express purpose of this plan is to promote the development of the most effective supply, distribution and organization of health facilities and services within Montana. Specifically, it will be used:

(1) To guide the Health Systems Agency (HSA) in:

- identifying high priority health care areas in need of special, in-depth studies
- conducting project review activities for grant applications; capital expenditure proposals (Section 1122 of the Social Security Amendments); and local, state or federal plans or policies affecting the health care delivery system in Montana
- formulating positions on health or health related issues of concern to the residents of Montana; and
- allocating Area Health Services Development Fund monies, should they become available.

(2) To inform the appropriate health care providers about the health care needs evident in Montana and the priorities of the HSA in order to:

- enable health care providers to better make informed and rational decisions in allocating their resources; and
- encourage the implementation of program development activities addressing identified problems.

(3) To inform government officials about the health care needs evident in Montana and the priorities of the HSA in order to:

- assist governmental entities in making informed and rational decisions in allocating health care resources in Montana.

(4) To inform community residents about the health care needs evident in Montana and the priorities of the HSA in order to:

- promote public involvement in health care planning; and
- increase public awareness of the health care delivery system.

1.1 Scope and Limitations

Theoretically, the Health Systems Plan should address all aspects of health and the health care delivery system in Montana. Unfortunately, because of staff and time constraints, this cannot be done. Therefore, this plan attempts to highlight the major concerns of Montanans and to suggest possible strategies which may relieve some of the more important problems.

The second Health Systems Plan differs from the first in a number of ways.

First, it has been expanded. Seven new plan components are included in this document. These are:

. Alcohol Services
. Drug Services
. Mental Health Services
. Emergency Medical Services
. Medical Manpower
. Dental Manpower
. Preventive Dental Services

The first four of these depend, at least in part, on federal funding and these grants will be subject to HSA review and approval when the HSA becomes fully designated. The primary intent of the manpower components is to explicitly state the HSA's position toward educational programs subsidized by the state and to develop explicit guidelines for the use of National Health Service Corps personnel in this state. The preventive dental component is intended to be a statement of support of the State Dental Bureau's programs.

The second major difference from last year's Plan is that each of the fifteen components addressed in last year's Plan has been rewritten to be more concise, understandable and usable. Because the national guidelines for health planning have been published, a conscientious attempt has been made to address them in the service descriptions where they apply. In many cases, the standards do not appear to be applicable to Montana and in these cases, justification is given for deviation from the national standards. In those instances where the national guidelines can be applied without creating undue hardships for the residents of Montana, they are adopted.

The primary purpose of these components is to aid in the review of proposed new services and to serve as a starting point in conducting appropriateness reviews. Throughout these components, a concerted effort was made to strike a balance among costs, accessibility and quality. These components are oriented toward minimizing duplication and restricting excess capacity of institutional services. Because of the lack of reliable data, especially cost information and patient origin studies, the development of more specific recommendations was hampered and allowances are made for deviations from the plan when the local situation dictates.

The third departure from the previous plan involves a more detailed approach to three general health problems in Montana. Although these components are not rigorously studied, they do identify some existing health problems and suggest a number of preventive and health education initiatives which may be developed to address these problems.

One of the major limitations in all of the components is that they could not be treated in as much detail as they may have been. In some cases, data did not exist which would support further analyses. In other cases, staff and time limitations prevented going into further detail. Consequently, it is suggested that the components be used as general guidelines which are tempered by local needs and demands.

1.2 Methodology

The Health Systems Plan is developed from a systems approach to planning, emphasizing services. Because this approach was used, the various sections, or components, were written and reviewed in modules. New components were developed in a manner similar to the first year's plan. The revised components which are addressed in the first year's plan utilized multidisciplinary task forces to assist in the revisions. Because of time constraints, subarea hearings were not held. Instead a series of statewide hearings, with the HSA Plan Development Committee as the hearing board, was utilized. Schematic diagrams of both processes through which the components flowed are presented in Appendix 4.

Members of the Montana Health Systems Agency staff were assisted in developing this Health Systems Plan by the State Health Planning and Development Agency (SHPDA) staff. The SHPDA staff was primarily responsible for developing those components dealing with state governmental programs.

CHAPTER 2

OVERALL PRINCIPLES

2.0 The Agency's Mission

The sole purpose of the Montana HSA is to engage in health planning consistent with the mandates of Public Law 93-641. As specified in the Agency's By-laws, its mission is to:

1. Improve the health of the residents of the State of Montana,
2. Increase the accessibility, continuity and quality of health services of the state,
3. Restrain increases in the costs of providing health services, and
4. Prevent unnecessary duplication of health services, manpower, and facilities within the state.1)

2.1 General Principles

1. Health services should be cost effective,
2. Consumers must share the responsibility for their own health and the costs of health services,
3. Health education programs should be emphasized,
4. More emphasis should be paid to the social components of health care which should include, but not necessarily be limited to, the special circumstances of the patient, his family, and the resources and the constraints of the community,
5. Health services should be coordinated at the local level to the maximum extent possible,
6. Primary care physicians should be recruited to shortage areas,
7. Alternatives to inpatient care should be encouraged,
8. Unnecessary duplication within the health field should be minimized.

	CATEGORIES OF SERVICE							SETTINGS							
SERVICE	Community Health Promotion	Prevention & Detection	Diagnosis & Treatment	Habilitation & Rehabilitation	Maintenance Services	Support Services	Enabling Services	Community	Home	Mobile	Ambulatory	Short-Stay	Long Stay	Free Standing Support	Addressed by the National Guidelines
Clinical Cardiovascular Laboratories and Cardiac Surgery Facilities			x									x			Yes
Radiation Therapy			x								x	x			Yes
Neonatal Intensive Care Units		x	x									x			Yes
End Stage Renal Disease			x						x			x			Yes
Burn Care			x									x			
Poison Control		x	x					x				x			
Blood Banking						x								x	
Computerized Tomography (CT) Scanners			x								x	x			Yes

CHAPTER 3

TERTIARY (REGIONAL) SERVICES

Tertiary care services are those special services that, because of complexity, cost, and/or relatively low levels of utilization, are planned to be located within a large catchment area. For these reasons, tertiary care services are typically provided in large referral hospitals and planned on a regional basis. In this plan, eight tertiary care services are addressed. They are:

- Clinical Cardiovascular Laboratories and Cardiac Surgery Facilities
- Radiation Therapy and Other Oncology Services
- Computerized Tomography (CT) Scanners
- End Stage Renal Disease
- Neonatal Intensive Care Units
- Poison Control
- Burn Care
- Blood Banking and Processing

Table 1 shows the general categories in which these services can be classified, the settings in which they are typically found and whether or not they are addressed in the National Guidelines.

Most of the services addressed in this section can be classified as diagnostic and treatment services. The notable exception is Blood Banking which is considered to be a support service. In some components, prevention and detection strategies are discussed. Although there are prevention and detection ramifications in almost all of these components, they are particularly important in delivering neonatal care and poison control services.

The most common setting in which the tertiary care services are found in Montana is in the large community (short-stay) hospital. Radiation therapy and CT scanners, both radiological procedures, are also found in ambulatory settings (physician's offices.) The End Stage Reanl Disease component emphasizes the potential of home care, especially in a rural state such as Montana, but at the same time acknowledges the need for hospital based dialysis units. Poison Control, since it is primarily an information referral service, can be either community based or hospital based. Finally, both Blood Banking Services in Montana are free standing facilities serving many hospitals. The population in any one area of Montana is too small to suggest community or hospital based blood banks.

Of the eight components addressed in this chapter, national guidelines are applicable to five of them. The Mhsa has considered these guidelines and found it necessary in many cases to justify exceptions to them. In weighing and trying to balance cost, accessibility, quality and the other characteristics, we have found, in many cases, accessibility to be extremely important. For example, if the guidelines for Radiation Therapy Units were to be literally followed, over 70 percent of the cancer patients would have to travel more than 50 miles for cancer treatment.

The primary theme running through all of these components is the concept of developing three strong tertiary care centers in Montana. These are Billings, Missoula, and Great Falls. Secondarily, if the local situation warrants, certain services should be developed in cities like Kalispell, Bozeman, Butte, Helena and Miles City.

3.1

SUMMARY

CLINICAL CARDIOVASCULAR LABORATORIES AND CARDIAC SURGERY FACILITIES

This component deals with two highly specialized medical procedures to treat severe heart disease - cardiac catheterization and open heart surgery. Catheterization is a diagnostic procedure which often determines whether or not surgery should be performed. Four institutions in Montana, Billings Deaconess, St. Vincent (Billings), St. Patrick (Missoula), and Montana Deaconess Medical Center (Great Falls), have developed clinical cardiovascular laboratories in which cardiac catheterizations are performed. Billings Deaconess and St. Patrick Hospital are also performing open heart surgery. There are no institutions which have the capability, specialists, or equipment to perform cardiac surgery on infants.

Based on a simplistic model, the HSA recommends that no further facilities should be initiating cardiac catheterization services in Montana. It is recommended that Montana Deaconess Medical Center investigate by 1985 the feasibility of developing a surgical service to complement its cath lab.

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CLINICAL CARDIOVASCULAR LABORATORIES
AND
CARDIAC SURGERY FACILITIES

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

To insure facilities offering cardiac diagnostic and surgical services achieve and maintain a high level of expertise and to systematically encourage the development of new services only when sufficient volume can be expected.

OBJECTIVES:

1) Through 1985, those institutions in Montana offering cardiac surgery and related diagnostic services should continue to improve their respective programs.

2) The Montana Deaconess Medical Center in Great Falls already has a cardiac catheterization program and should consider developing a cardiac surgery service.

3) Where in the opinion of the referring physician, there is a choice in the use of clinical cardiovascular and/or cardiac surgery facilities, facilities in Montana should receive primary consideration.

4) No other facilities in Montana should develop these services unless the need for an additional service can be demonstrated.

5) By 1985, each cardiac surgery program in Montana should actively sponsor patient self help groups such as "Mended Hearts".

Recommended Review Criteria for Clinical Cardiovascular Laboratories and Cardiac Surgery Facilities:

1) All facilities proposing to deliver either of these services must show it is economically feasible.

2) Institutions involved in cardiovascular surgery should have readily available a clinical cardiovascular laboratory. Clinical cardiovascular laboratories independent of an institution involved in cardiovascular surgery should be discouraged.

3) The following services should be available on a 24-hour emergency basis to the surgical team: radiological, standard laboratory facilities, full blood bank, bacteriological laboratory, autopsy, intensive care, and dialysis.

REVIEW [illegible]

4) Cardiac care of high quality should be provided as close to the patient's home as is feasible, without compromising his opportunity for recovery. On the other hand, competing low volume programs in close geographic proximity are to be discouraged.

5) An adequate follow-up system established by the surgical team is necessary so patients are seen as often as required in the immediate post discharge period and subsequently followed at appropriate intervals.

6) The following standards (in terms of number of procedures performed per year) are suggested:

Clinical Cardiovascular Laboratory:

Minimum	100 caths/angiographer
Optimum	300 caths/lab
Maximum	500 caths/lab

Open Heart Surgery (two physician team at a minimum and at the end of three years of operation):

Minimum	100
Optimum	150
Maximum	350

The purpose of the minimum category is to provide a guideline at which a provider can maintain proficiency in the field. Operating below these levels for an extended period of time may result in a decrease in efficiency and a lowering in the quality of service being provided. The optimum category is provided so the number of procedures performed by a laboratory is neither too few, so as to decrease its proficiency, nor too many, to be overworked. The optimum number will vary depending on the size and proficiency of the team in the cardiovascular lab.

7) In order to provide quality nursing care for open heart surgery patients in the Intensive Care Unit, there should be no less than one registered nurse for every open heart patient during the first 24 hours. In addition, optimal staffing requires adequate backup support from other registered nurses assigned to the ICU.

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ONLY

1.0 Background

In the evolution of cardiac surgery procedures, it is not clear whether medicine or surgery offers any definitive solution for patients with heart and/or blood vessel problems. In recent years, surgical techniques have been developed to treat selected heart conditions. These techniques can be classified as closed heart surgery (repairs are made without direct vision of the heart), open heart surgery (direct vision of the heart is necessary), and coronary artery surgery (adequate blood flow is restored to sections of the heart). Operations that employ one of these three techniques may require a cardio-pulmonary bypass (heart-lung) machine.

Some of the conditions which currently are amenable to surgical intervention are disabling angina pectoris* which is unresponsive to other medical treatment, acquired valvular disease or aneurysms, and congenital heart disease. In some cases, surgery is also used to treat preinfarction angina* and uncontrollable ventricular arrhythemia.*[1] A detailed list of cardiac disorders in which surgical management can be employed is contained in the Inter-Society Commission for Heart Disease Resources' Guidelines for Cardiac Surgery.[2]

Before the patient undergoes surgery the following diagnostic tests are performed: chest X-ray, electrocardiogram, standard clinical laboratory examinations, and exercise stress tests. Most candidates for cardiovascular surgery also have a cardiac catheterization (a small tube, catheter, is passed through a vein in the arm, leg, or neck into the heart). A catheterization permits differential pressures within the heart and aortic artery to be measured. Blood gasses are measured at various points throughout the procedure to provide information on possible lesions and heart efficiency. Contract media may also be injected through the catheter to outline the shape of major veins and arteries and to further check the action of cardiac valves.[3]

Cardiac catherizations should be performed in a clinical cardiovascular laboratory. To allow for procedural efficiency and patient safety, the laboratory should have a procedure room, a control room, an equipment room and areas for supporting facilities.[4]

Table 1 illustrates that the number and rate of ischomic heart disease has gradually been decreasing since 1970. Further, the total number and rate of all heart diseases has stabilized or has been slightly decreasing since 1970.

---

*See Glossary

		1970 a)		1971		1972		1973		1974		1975		1976	
ICDA CODE	CAUSE OF DEATH	NO.	RATE b)	NO.	RATE	NO.	RATE	NO.	RATE	NO.	RATE	NO.	RATE	NO.	RATE
393-398	Chronic Rheumatic Heart Disease	48	6.9	65	9.2	60	8.3	77	10.7	50	6.8	56	7.5	52	6.9
410-414	Ischemic Heart Disease	1878	273.3	2013	283.5	1935	270.0	1935	269.1	1857	252.7	1790	239.3	1756	233.2
420-429	Other Forms of Heart Disease	244	35.1	223	31.4	258	35.9	254	35.2	262	35.6	287	38.4	349	46.3
440-448	Diseases of Arteries, Arterioles, and Capillaries	255	36.7	257	36.2	280	38.9	282	39.1	270	36.7	281	37.6	267	35.4
440	Arteriosclerosis	162	23.3	156	22.0	172	23.9	167	23.2	169	23.0	168	22.5	163	21.6
441	Aortic-Aneurysm (Non syphilitic)	37	5.3	47	6.2	54	7.5	63	8.7	57	7.8	60	8.0	38	7.7
	Total	2445	352.1	2553	360.3	2504	353.3	2548	353.4	2439	331.8	2642	353.3	2645	351.1

a) Source: State Department of Health and Environmental Sciences, Montana Vital Statistics, 1970, 1971, 1972, 1973, 1974, 1975, 1976.

b) Rate per 100,000 population

TABLE 1 - Crude Annual Death Rate in Montana Due to Selected Heart Disease Conditions for the Period Between 1970-1976.

2.0 Description of the Current Situation

Figure 1 shows the communities in which cardiac catheterizations and open heart surgeries are currently being performed. Four institutions in Montana, Billings Deaconess, St. Vincent (Billings), St. Patrick (Missoula), and Montana Deaconess Medical Center (Great Falls), have developed clinical cardiovascular laboratories in which cardiac catheterizations are performed. In conjunction with these facilities, Billings has one cardiac surgery team, Missoula has two, and Great Falls none.

There are no institutions which have the capability, specialists, or equipment to perform cardiac surgery on infants.

Data showing the utilization of these facilities is shown in Table 2. This information was obtained from the individual providers involved. As of 1977, it appears that the number of cardiac catheterizations performed in two institutions (Billings Deaconess and St. Patrick) are at or near acceptable levels. As the program at Montana Deaconess Medical Center in Great Falls, and St. Vincent Hospital's is relatively new, their number of cardiac catheterizations is less than the other two programs, but is continuing to grow. The utilization of the two catheterization programs in Billings should be monitored closer to insure both programs perform above the standards listed in the review criteria.

Both surgical programs in the state are currently approaching 200 operations a year.

There are two mended heart chapters active in Montana - one each in Billings and Great Falls. Affiliated with the national mended hearts association, these two chapters serve individuals who have had some type of open heart surgery. At chapter meetings, common problems of rehabilitation from open heart surgery are discussed. Approximately 60 individuals are members of the Billings chapter. The Great Falls chapter has a membership of approximately 40 individuals.

3.0 Plan for the Future

3.1 Estimate of Need

As the state of the art of medicine is not clear in its thinking of surgery or medicine for treating heart disease, and equipment costs for an open heart surgery team are continuing to increase*, projecting the number of cardiac procedures is difficult. However, the estimates shown in Table 3 indicate by 1985 Montana can support three clinical cardiovascular laboratories. The conclusion of continuing to use the three existing clinical cardiovascular labs and cardiac surgery facilities is based on the methodology developed by Hartman, Hines, and Wollard at the University of Iowa.5)

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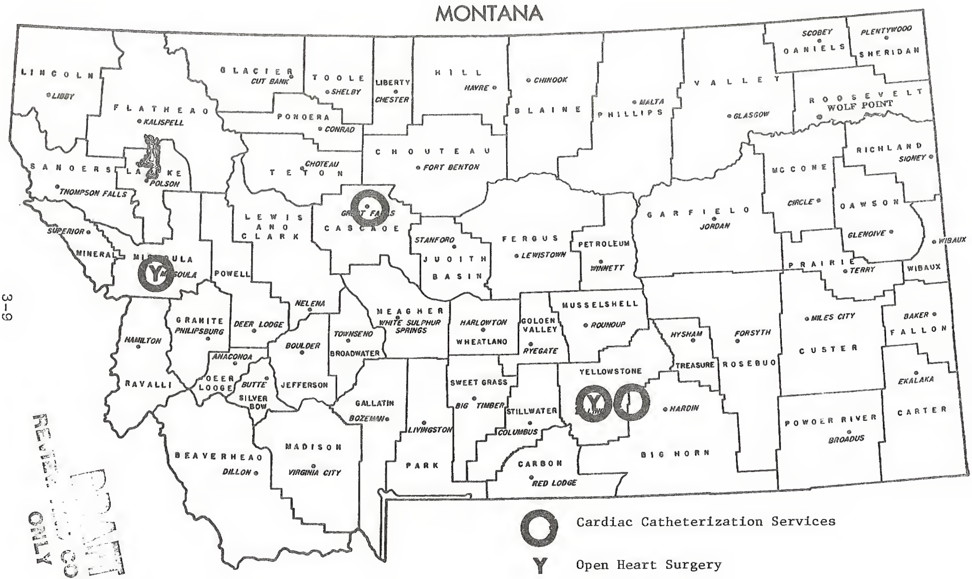

Figure 1 - Locations of Cardiac Catheterization & Open Heart Surgery Capabilities in Montana (1978)

REVIEW DRAFT COMMENT ONLY

TYPE OF PROCEDURE AND TIME PERIOD	BILLINGS DEACONESS (BILLINGS)	ST. VINCENT (BILLINGS)	ST. PATRICK (MISSOULA)	MONTANA DEACONESS (GREAT FALLS)
Cardiac Catheterizations				
1972	15			
1973	54			
1974	69		87[1]	
1975	240		257	72
1976	434		382	111
1977	505[2]		451	144
1978		19[3]		
Open Heart Procedures				
1972	18			
1973	53[4]			
1974	68			
1975	95			23[5] referrals
1976	174		94	42[5] referrals
1977	178		134	57[5] referrals

TABLE 2 - Number of Cardiac Catheterizations and Open Heart Surgeries Performed in Montana Hospitals

[1] Started September 3, 1974.

[2] A declining trend for fiscal 1978 (July 1977 - June 1978) has been noted. For June, July, and August, procedures performed were 37, 28, and 26, respectively.

[3] St. Vincent Hospital (Billings) has been doing cardiac catheterizations since July 9, 1978. Nineteen procedures were performed between July and October.

[4] Operating room closed for renovation for two months in 1973.

[5] Approximately 10 - 12 patients referred each year for catheterizations and possible surgery because the physician felt it advisable that a surgery team be available in these cases of severely unstable or post-infarction angina.

	AREA					
	STATE	NORTH WESTERN	SOUTH WESTERN	NORTH CENTRAL	SOUTH CENTRAL	EASTERN
Estimated 1976 Population	752,500	174,700	179,800	147,100	151,200	99,700
Expected # Cardiac Catheterizations	1,043	242	255	207	206	132
Expected # Cardiac Surgeries	391	91	96	78	78	50
Estimated 1985 Population	859,728	206,093	205,798	156,766	180,819	110,252
Expected # Cardiac Catheterizations	1,262	347	333	221	235	126
Expected # Cardiac Surgeries	473	130	125	83	88	42

TABLE 3 - Projected Number of Cardiac Catheterizations and Heart Surgeries to be Performed on Montana Residents in 1976 and 1985.

- Based on national statistics, the annual number of hospital admissions per 1,000 population is about 17.6.

- Based on national statistics from PAS hospitals, the ratio of cardiac admissions to all hospital admissions is about 5.60 percent.

- About 14 out of every 100 patients admitted with diagnosed cardiovascular conditions are in need of cardiac catheterization services. (Based on an analysis of patient records from the cardiac catheterization unit at the University of Iowa Hospital, October, 1971.)

- Between nine to 15 cardiac catheterizations must be performed to yield three to four surgical candidates.

3.2 Justification for Exceptions to the National Guidelines

The national guidelines (published March 28, 1978) indicate the following levels of utilization should be used as standards:

Cardiac Catheterizations

1) There should be a minimum of 300 cardiac catheterizations performed in any adult cardiac catheterization unit within three years after initiation.

2) There should be no new cardiac catheterization unit opened in any facility not performing open heart surgery.

3) There should be no additional adult cardiac catheterization unit opened unless the number of studies per year in each existing unit in the health service area is greater than 500.

Open Heart Surgeries

1) There should be a minimum of 200 open heart surgeries performed annually, within three years after initiation, in any institution in which open heart surgery is performed for adults.

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* Heart lung machine - $30,000 with backup unit $60,000; intra-aortic balloon pump - $20,000. The approximate cost of an open heart surgery operation (two by-passes with no complications) is between $12,000 and $15,000.

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2) There should be no additional open heart units initiated unless each existing unit in the health service area is operating and is expected to continue to operate at a minimum of 350 open heart surgery cases per year in adult services.

These standards correspond to the optimal and maximum levels recommended by the HSA in its review criteria. However, the Montana HSA has suggested a lower minimum level. The reasoning for this is presented below.

> With respect to cardiac catheterizations, none of the facilities currently serving Montana are teaching centers, nor are any of the facilities larger than 300 beds. To adequately serve the population of Montana, the four facilities are located in the three large population centers in the state and are recognized as referral hospitals. Using mortality and morbidity levels recognized nationally as measures of safety and efficiency of laboratory performance, facilities in Montana can operate within these measures at a case load of about three to four cases a week.
>
> Distance to service for citizens in Montana is an important factor to consider in providing cardiac catheterization services. As current laboratories can provide a level of care consistent with that offered in other parts of the nation, lowering the minimum number of cardiac catheterizations of 100 per angiographer is justified.
>
> With respect to open heart surgery units, transportation of patients in need of open heart surgery should be minimized to help maintain the patient's stability. By using the four facilities presently serving the three large population centers in the state, transportation (which still may be far and hazardous in the winter) time can be minimized.
>
> Using mortality and morbidity levels recognized nationally as measures to maintain quality of patient care and to make the most efficient use of resources, a case load of two surgeries per week per two physician team, serves as a minimum for Montana.

REFERENCES

1) Inter-Society Commission for Heart Disease Resources, Committee on Coronary Artery Surgery, "Optimal Resources for Coronary Artery Surgery", Circulation, Volume 46, October, 1972, pp. A-325 to A-339.

2) J. C. Scannel et al, "Report of the Inter-Society Commission for Heart Disease Resources, Optimal Resources for Cardiac Surgery, Guidelines for Program Planning & Evaluation", Circulation, Volume 52, November, 1975, pp. A-23 - A-41.

3) Hartman, Berhard; J. C. Hines and D. Wollard "The Cardiac Catheterization Center: An Implementation Feasibility Study", in Administration for the Effective Control of Heart Disease Two Compensatory Studies, Health Care Demonstration Series No. 5, University of Iowa, 1973.

4) M. P. Judkins, et al. Report of the Inter-Society Commission for Heart Disease Resources, Optimal Resources for Examination of the Chest and Cardiovascular System, A Hospital and Resource Guideline, Circulation, Volume 53, No. 2, February, 1976, pp. A-1 to A-37.

5) Hartman, Hines, Wollard, Op. Cit.

3.2
SUMMARY

RADIATION THERAPY

Radiation Therapy is one of the three basic approaches or modalities currently used in cancer treatment. Depending upon the type of disease, it can be used by itself or in combination with surgery and chemotherapy. The purpose of the guidelines in this component is to foster a practical network of cancer programs in Montana built around radiation therapy units.

The American Cancer Society estimates 2,100 new cases of cancer will be diagnosed in the state. (1976 estimate) Mortality due to cancer in Montana is somewhat less than the nation as a whole. However, cancer is and has been the second leading cause of death in Montana.

The location, theoretical catchment areas and major referral support locations of the radiation therapy facilities in Montana are exhibited with utilization of those locations indicated.

The MHSA recommends two types of radiation therapy facilities be developed into a national network of cancer care in Montana. These are: correlated cancer management facilities serving 200,000 persons in a radius of 150 miles, treating 300 new cancer patients a year, providing 6,000 treatments per year; and cooperative management facilities serving 67,000 people in a radius of 100 miles, treating 100 new patients a year, providing at least 1,000 treatments per year.

The HSA recommends that a correlated cancer management facility should be developed in Missoula by 1980 if it can be shown to be economically feasible, and a cooperative cancer management facility should be developed in Kalispell by 1980 if it also can be shown to be economically feasible.

RADIATION THERAPY

GOALS, OBJECTIVES AND RECOMMENDED REVIEW CRITERIA

Goals:

1 - That two types of radiation therapy facilities be developed into a national network of cancer care in Montana. The first, correlated cancer management facilities, should satisfy the following standards when fully operational:

- Serve a population of at least 200,000 persons in a radius of 150 miles,
- Treat at least 300 new cancer patients a year, and
- Provide at least 6,000 treatments (patient visits) a year.

The second, cooperative cancer management facilities, should be designed to satisfy the following standards:

- Serve a population of at least 67,000 people in a radius of 100 miles,
- Treat at least 100 new cancer patients a year, and
- Provide at least 1,000 treatments (patient visits) a year.

Although the criteria for correlated cancer management facilities satisfy federal guidelines for radiation therapy, the criteria for cooperating facilities do not. The latter are justified as exceptions on the basis of accessibility.

2 - Radiation therapy facilities should not be duplicated in any community in Montana.

Objectives:

1 - That a correlated cancer management facility be developed in Missoula by 1980, if it can be shown to be economically feasible.
2 - That a cooperative cancer management facility be developed in Kalispell by 1980, if it can be shown to be economically feasible.
3 - By 1985, all cancer programs in Montana should foster the development of patient self-help groups.

Recommended Review Criteria for New Radiation Therapy Units:

1 - The revenue generated by a new cancer program with a radiation therapy capability should be able to support its own direct operating costs, depreciation costs and its share of overhead. The break even point should be reached at the end of the fourth completed fiscal year after initial operation, given prevailing prices. (See Table 1 for an example of typical unit costs for radiation therapy services.)

2 - Facilities proposing to purchase high and medium voltage radiation therapy equipment should satisfy the standards stated in the HSA goal statement.

3 - Institutions with radiation therapy units should encourage their staffs to take a multidisciplinary approach to cancer care. Specifically, each facility applying for a supervoltage radiation therapy unit should have, or be committed to recruiting, the following medical specialties, full time on their staffs:

- Radiation Therapy
- Medical Oncology
- Surgery
- Pathology

4 - To monitor the quality of care being provided, each facility developing a cancer program should set up a tumor registry to follow-up on each patient annually.

5 - Each facility wishing to purchase either a linear accelerator or Cobalt-60 unit should have made arrangements for appropriate radiation physics support. Specific standards for physics support are outlined in "A Code of Practice for X-Ray Therapy Linear Accelerators."

6 - All radiation therapy departments should have appropriate dosimetry support.

7 - Institutions developing either type of cancer program should be encouraged to get their programs approved by the American College of Surgeons.

Number of Procedures Per Year	4,800	6,000	7,500
Number Patients Per Day	20	25	30
% Utilization 1)	53.3%	66.7%	83.3%
Operating Costs of a Typical Facility 2)			
. Salaries	66,760	66,760	66,760
. Physicist (Consulting Fee)	23,220	23,220	23,220
. Supplies 3)	10,848	13,560	16,950
. Maintenance Contract	16,500	16,500	16,500
. Indirect Costs 4)	29,332	30,010	30,858
. Depreciation 5)	63,750	63,750	63,750
. Interest 6)	30,110	30,110	30,110
. Malpractice	12,000	12,000	12,000
Total Annual Operating Costs	$252,520	$255,910	$260,148
Cost Per Procedure	$ 52.60	$ 42.65	$ 34.68

1) As a general rule, a Linear Accelerator can deliver between 9,000 and 10,000 treatments per year. This figure assumes that the average time required to treat a patient is between 10 and 11 minutes that the machine is used for patient treatments for 35 hours a week and that no more than 4 percent of the time scheduled for treatment is lost due to equipment failures or other problems.
2) Based on estimates presented in a recent certificate of need review for a Linear Accelerator--total project cost was $510,000.
3) Supplies are estimated to cost $2.26 per treatment.
4) Indirect costs were estimated to be 25 percent of direct costs.
5) Depreciation costs are based upon a straight line projection over an assumed 8 year life-span of the machine.
6) Interest Annual Level Payments are based upon an 8 year loan at 9½ % for the entire principal--$510,000.

TABLE 1 - Estimated Costs for a Linear Accelerator as a function of number of treatments performed per year.

NOTE: This table is intended to serve as a baseline for the cost of radiation therapy to the average patient. It does not represent any facility, nor should it be used as a guage to measure an individual applicant's proposal.

1.0 Background

Radiation therapy is one of the three basic approaches or modalities currently used in cancer treatment - the two others being surgery and chemotherapy (drugs). Depending upon the type of disease and its extent of development when diagnosed, these three approaches are used singly, sequentially, or in combination. For this reason, and because these three approaches to cancer treatment involve different medical specialties, the American College of Surgeons has recommended that local cancer treatment programs combine all three approaches in a cooperative multidisciplinary effort.

The purpose of these guidelines is to foster a network of cancer care within Montana. Special emphasis will be given to the future placement of radiation therapy units. Because of their costs, the purchase of units and their associated equipment will almost always require prior review and approval.

The different types of radiation therapy units can be categorized by the voltage range in which they operate:

- Linear Accelerators are classified as high energy units and operate with energies greater than three million volts. These machines have the ability to emit electrons as well as X-rays.

- Cobalt-60 Units are classified as medium energy machines because they operate in the range between 600,000 and two million volts. These machines are somewhat less precise and take more time to treat patients than the high energy units.

- Orthovoltage X-Ray machines operate in a range between 140,000 and 600,000 volts. These machines are primarily used to treat superficial tumors on or just beneath the surface of the skin.

- Superficial X-Ray units operate in a range between 140,000 and 600,000 volts. These machines are also used to treat skin cancer and other superficial lesions.

In cancer treatment programs, these units are used in two ways. First, if the disease has not spread, these are used to shrink and destroy the tumor (i.e., to cure the disease). Second, if the disease has spread, it is used for palliation, to ease the pain and improve the quality of life. In general, treating for cure demands much more technical expertise and precision than palliation.

Both linear accelerators and cobalt-60 units can be used to cure deep tumors. However, it appears that the trend is toward increased use of linear accelerators in curative programs. Consequently, these guidelines will assume that a comprehensive curative cancer program will build its program around a linear accelerator. A more limited program designed to emphasize palliative treatment would probably consider a cobalt unit.

Because of the vast distances involved, the sparse populations to be served, and the general lack of public transportation systems in Montana, this document will focus upon development of two different types of radiation therapy programs in Montana. The first, and more comprehensive program, would have the staff, equipment and resources to undertake curative treatments. The second type of program would be primarily used for palliation and to provide the less demanding types of treatment, such as skin cancers. As will be shown in the next section, this is the way in which radiation therapy facilities have already developed in Montana.

2.0 Description of the Current Situation

2.1 Incidence, Prevalence and Mortality

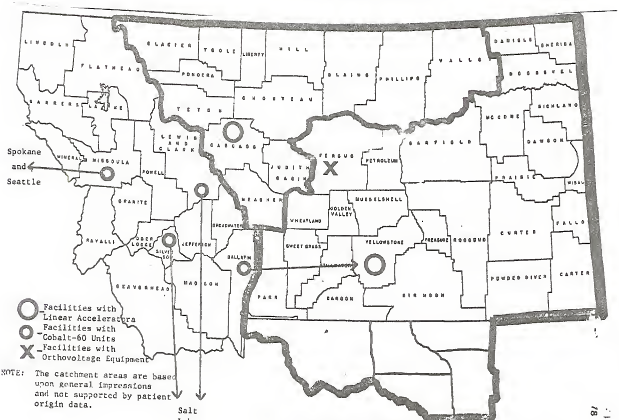
In Montana, no reliable local estimates of cancer incidence are currently available. The American Cancer Society estimates that 2,100 new cases of cancer will be diagnosed in the state in 1976.1) This statistic is derived from the third annual cancer survey which was conducted in 1971. Using the same data base, the National Cancer Institute estimates that the annual national rate for all newly diagnosed cases is 3.0 per 1,000 population.2)

It appears that mortality due to cancer in Montana is somewhat less than the nation as a whole. For example, the crude 1975 mortality rate from cancer was 147.7 in Montana and 171.1 in the nation. Nevertheless, cancer is and has been the second leading cause of death in Montana for the past several years.3)

2.2 Current Inventory and Utilization Levels

Figure 1 shows the location, theoretical catchment areas, and major referral support locations of the radiation therapy facilities in Montana. The intent of this figure is to give the reader a general impression of the areas served by the radiation therapy facilities in Montana. It is not intended to make a radiation therapy facility responsible for specific counties and only those counties. In reality, catchment areas expand and contract continuously and often overlap.

Table 2 identifies the specific institutions. lists the types of radiation therapy equipment currently available and reports the 1977 utilization of these units. At the present time, two regional cancer programs have been developed in Montana which apparently serve most of the cancer patients in their catchment area. These two programs are:



NOTE: The catchment areas are based upon general impressions and not supported by patient origin data.

FIGURE 1 - Location of Radiation Therapy Facilities in Montana, their general catchment areas, and referral centers.

FACILITY	RADIATION THERAPY EQUIPMENT Mega-Voltage	Super-Voltage	Ortho-Voltage	Super-Ficial	NUMBER OF RADIATION THERAPY PROCEDURES PERFORMED (1977) Inpatient	Outpatient	Total
NORTHWESTERN							
St. Patrick (Missoula)		CO-60		X	110 1)	973 1)	1,083 1)
NORTH CENTRAL							
Columbus (Great Falls)	20MEV 2)	CO-60	X	X	1,111	4,989	6,100
SOUTHWESTERN							
St. James Comm. (Butte)		CO-60			174	1,080	1,254
Bozeman Deaconess (Bozeman)		CO-60	X	X	--	--	549 3)
St. Peter's (Helena)		CO-60		X	6	1,020	1,026
SOUTH CENTRAL							
Billings Deaconess (Billings)		CO-60 4)			456	430	886
Northern Rockies Regional Cancer Treatment Center (Billings)	12MEV	CO-60		X		7,235	7,235 5)
Central Montana Hospital				X		87	87

1) For the period November, 1977 through April, 1978 (6 months); utilization of the Cobalt-60 Unit only.
2) Linear Accelerator became operational March 28, 1978 in a new facility. The new hospital was officially opened May 12, 1978. Of every 100 patients currently seen, about 70 are treated on the Linear Accelerator and 30 on the Cobalt-60 Unit.
3) Cobalt-60 treatments only; does not include Orthovoltage, supervicial, iodine 131 or P-32 treatments.
4) Service discontinued--May 31, 1978.
5) Estimated that 90 percent of the procedures were provided on the Linear Accelerator, 6 percent on the Cobalt-60 Unit and the remainder divided between Implants, Supervicial X-rays and checkups.

Standards:
National Guidelines - 6,000 procedures/year
American College of Radiology-5,000-8,700 procedures/year

TABLE 2 - Utilization of Radiation Therapy Equipment in Montana (1977)

SOURCE: Unpublished data from the 1977 Hospital and Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana and from individual facilities.

- Columbus Hospital in Great Falls
- Northern Rocky Mountain Cancer Treatment Center in Billings

These two programs both have linear accelerators and cobalt units to provide a full range of treatment capability. Both have two board certified radiation therapists and a physicist on staff. Both programs appear to be satisfying the national guidelines of serving populations of at least 150,000 people and performing at least 6,000 treatments a year.

There are four other facilities in Montana which have Cobalt-60 units and provide limited services. These are:

- St. Patrick Hospital (Missoula)
- St. James Community Hospital (Butte)
- Bozeman Deaconess Hospital (Bozeman)
- St. Peters Hospital (Helena)

At the present time, these units are primarily used for palliation and skin cancer treatments. Each of these units are operated under the direction of general radiologists. Each of these facilities is currently doing about 1,000 procedures a year.

The Central Montana Hospital in Lewistown has only an orthovoltage capability which is primarily used for the treatment of skin cancers. It too is operated under the direction of a general radiologist. Only about 100 procedures were performed on it in 1977.

3.0 Plan for the Future Placement of Radiation Therapy Units

3.1 Overview

Because of the vast distances to be traveled in Montana, it has been suggested that two types of radiation therapy facilities be encouraged within Montana. These are needed to provide reasonable access to quality cancer care without the patients and their families spending inappropriate amounts on traveling and temporary living arrangements. These would roughly correspond to two of the three types of facilities espoused in the 1968 report, A Prospect for Radiation Therapy in the United States 4). These are:

- Correlated Cancer Management Facilities, and
- Cooperating Cancer Management Facilities.

REVIEW AND COMMENT ONLY

The general characteristics of each of these facilities are depicted in Table 3. It is envisioned that the correlated facility would be a comprehensive cancer program offering both curative and palliative services. In contrast, the cooperative facility would primarily offer palliative care and treatment of superficial tumors. The services of a cooperating facility should be coordinated with a nearby correlated facility or major cancer center.

It is suggested that as the patient load increases towards 300 new cases a year and/or a change in the distribution of potentially curable patients occurs, the cooperative facility may evolve into a correlated program.

Although two types of cancer facilities or programs are proposed in this plan, Montana does not have, and will not have in the foreseeable future, communities sufficiently large to justify more than one radiation therapy facility.

3.2 Estimated Need

The estimated need for the two types of radiation therapy facilities in the various communities in Montana in 1985 is shown in Table 4.

The need for these facilities was estimated by the following procedures.

1. The maximum number of correlated cancer management facilities (i.e., those facilities with linear accelerators) which could be supported, the state's 1985 projected population was divided by 200,000. Since the state's 1985 population is expected to be 853,000, this means that, at most, four such facilities could be justified.

2. The location and capacity of existing radiation therapy facilities were examined and the population within a 150 mile radius was considered. As a result, the following communities were identified as potential sites for linear accelerators:

   - Billings
   - Great Falls
   - Missoula, and
   - Butte, Helena, or Bozeman

In the latter case, it was felt that a linear accelerator can be justified only in one of these communities and only if the other two would cease delivering radiation therapy services.

Of the other three, only Missoula has not yet developed this capability.

REVIE MMENT

CHARACTERISTIC	CORRELATED CANCER MANAGEMENT FACILITY	COOPERATING CANCER MANAGEMENT FACILITY
Primary Equipment	Linear Accelerator, Cobalt-60 Unit, and Orthovoltage Machine	Cobalt-60 Unit and/or Orthovoltage Units
Support Equipment	Simulator	
Staffing	One or two full time Radiation Therapists, and one full time Radiation Physicist	At least one full time General Radiologist and Consultant Physicist
Related Medical Specialists available full time	Medical Oncology Surgery Pathology	Internal Medicine with interest in Oncology Surgery Pathology
Patient Load	300 new cases and 6,000 treatments (patient visits) per year	100 new cases and 1,000 treatments (patient visits) per year
Required Population Base 1)	200,000	66,667

1) Estimated on the basis that the incidence of cancer is 3.0 new cancer patients per year per 1,000 population and about 50 percent of all new cancer patients will require radiation therapy.

TABLE 3 - Desired Characteristics of Correlated and Cooperating Cancer Management Facilities

Source: A Prospect for Radiation Therapy in the United States, Oct. 24, 1968

TYPE OF FACILITY & LOCATION	ESTIMATED 1985 POPULATION	ESTIMATED NEW CANCER TREATMENTS	ESTIMATED R.T. TREATMENTS PER YEAR
Correlated Cancer Management Facilities			
- Billings	280,834+	843+	12,637
- Great Falls	183,809	551	8,271
- Missoula	261,259	784	11,757
- Butte, Helena or Bozeman	205,798 1)	617	9,255
Coordinated Cancer Management Facilities			
- Kalispell	92,867 2)	278	2,085
- Butte	78,049 3)	234	1,756
- Bozeman	64,204 4)	193	1,445
- Helena	58,528 5)	176	1,317
Other Possible Sites Limited Radiation Therapy			
- Havre	29,439 6)	88	662
- Lewistown	14,295 7)	43	322
- Glasgow	36,497 8)	109	821
- Miles City, Glendive or Sidney	41,717 9)	125	939

1) It is assumed that if a Linear Accelerator were placed in one of these cities and the other two Radiation Therapy Units were phased out, the catchment area would be roughly the Southwestern Subarea. In this case, the potential catchment areas for Missoula, Billings and Great Falls would be reduced.

2) Kalispell's potential catchment area is assumed to be Flathead, Lake and Lincoln Counties.

3) Butte's catchment area is assumed to be Silver Bow, Deer Lodge, Powell, and Beaverhead Counties.

4) Bozeman's catchment area is assumed to be Gallatin, Park and Madison Counties.

5) Helena's catchment area is assumed to be Lewis & Clark, Broadwater and Jefferson Counties.

6) Havre's potential catchment area is assumed to be Hill, Blaine and Liberty Co.

7) Lewistown's potential catchment area is assumed to be Fergus and Petroleum Co.

8) Glasgow's potential catchment area is assumed to be Valley, Phillips, Daniels, and Roosevelt Counties.

9) The potential catchment area for any of these three facilities is assumed to be primarily Custer, Prairie, Dawson and Richland Counties.

TABLE 4 - Estimated Number of New Cancer Patients and Therapy Treatments in Proposed Radiation Therapy Facilities in Montana in 1989

3. Potential locations for cooperating cancer management facilities were investigated using the criteria of a population base of 67,000 and a service area radius of 100 miles. The following communities appear to satisfy this criteria:

   - Kalispell
   - Butte
   - Bozeman
   - Helena

In addition, the following communities satisfy the distance (accessibility) criteria but apparently do not have the population base to justify a cooperative cancer program:

- Havre
- Lewistown
- Glasgow
- Miles City, Glendive, or Sidney

However, it is not expected that any of these communities will be able to satisfy the other review criteria to justify development of a cooperative cancer program.

3.3 Justification of Exceptions to the National Guidelines

This plan suggests the establishment and maintenance of cooperative cancer management facilities (for palliative treatment of cancers) and is at variance with the national guidelines. The national guidelines for radiation therapy cannot be followed in Montana because such a policy would deny a sizable proportion of Montanans reasonable access to medical care. There also exists the potential for actually increasing the overall costs of cancer treatment.

Radiation therapy is different from the other tertiary services in that many repeat visits are needed to provide full treatment. It has been estimated that a full regimen of treatment requires an average of 20 visits. These treatments are given over an extended period of time and many are provided on an outpatient visit basis.

Each of the cooperative cancer facilities being suggested in this plan (Kalispell, Butte, Bozeman, and Helena) are major population centers in Montana and would be at least 90 miles from a city with a radiation therapy capability (see Table 1). Approximately 21.5 percent of Montana's population lives in these four counties.

Assuming that a patient travels this distance, at 55 miles per hour, he would spend between three and five hours on the road for each treatment. In some cases, the patient has a

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reaction to the treatment (nausea is a common aftereffect), which would make the trip home extremely difficult. In effect, following the national guidelines would deny treatment for a substantial portion of Montana residents.

In terms of costs, travel expenses incurred by each patient would be between $600 and $900 (see Table 1). Assuming that the average charge for a treatment is $50 and each patient needs about 20 visits, the medical cost of treating a patient is about $1,000. This means that a cooperative facility could charge as much as 60 percent more per treatment and still save the patient money. All of the four proposed cooperative cancer facilities already have Cobalt 60 units and one would not expect the unit costs to be this high.

In addition, travel costs are not reimbursed by third party payors. The patient may be denied access to medical care because of fiscal constraints.

Potential Cooperative Cancer Facility	Neareat Cancer Program	Estimated 1976 County Population	Distance to Nearest Cancer Program (miles)	One-way Travel Time[1] (hours)	Estimated Travel Costs per Patient[2]
Kaliapell	Missoula	45,400	115	2.09	$679.10 - $782.00
Butte	Missoula	41,100	124	2.25	$682.16 - $843.20
Helena	Great Falls	38,000	89	1.62	$605.20 - $670.26
Bozeman	Billings	37,400	143	2.60	$688.62 - $972.40

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1) Eatimated at 55 miles/hour.

2) It is assumed that each patient must have 20 treatments. Two estimates of travel expenses are used. First, it is assumed that the patient returns home after each treatment (cost = $0.17/mile). Second, it is assumed that the patient drives to the referral center, stays there until the treatments are completed (cost = $32.00 per day).

TABLE 5 - Travel Time and Travel Expenses to be Incurred if No Cooperative Cancer Facilities Were Established in Montana

REVIEW [illegible]

REFERENCES

1) American Cancer Society "76 Cancer Facts and Figures" 1975.

2) Levin, D.L., et al, Cancer Rates and Risks U.S. Department of Health, Education and Welfare, Public Health Service, National Institute of Health 2nd edition 1974, DHEW Publication No. (NIH) 76-691.

3) The Bureau of Records and Statistics, State Department of Health and Environmental Sciences, Montana Vital Statistics, 1975.

4) Subcommittee on Regional Medical Programs of Committee for Radiation Therapy Studies, A Prospect for Radiation Therapy in the United States final report, October 1968.

REVIE MMENT

3.3

SUMMARY

COMPUTERIZED TOMOGRAPHY (CT) SCANNERS

As a diagnostic tool for a wide range of head and body anomalies, the CT scanner is a computerized X-Ray system which can produce cross-sectional pictures of the head or body, including pictures of organs obscured in conventional X-Ray photographs.

There are presently two whole body scanners in Montana, one in Great Falls at Columbus Hospital and another in Billings in the offices of Eastern Radiological Associates. A head scanner is also located at St. Patrick Hospital in Missoula.

Standards are suggested by MHSA and based on this criteria it is recommended that no more than three CT scanners should be located in Montana until utilization levels can no longer accomodate patient demand. Through 1985 any new CT scanners must be justified based on cost effectiveness, scope and value of services, accessibility and availability of qualified personnel. Third party payors should be encouraged to include whole body CT scans as a reimbursable item.

COMPUTERIZED TOMOGRAPHY (CT) SCANNERS

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

As planning goals, the following standards are suggested:

1) A whole body CT scanner should operate at a minimum of 1,000 medically necessary scans per year for the first year of operation and 1,500 medically necessary scans per year for the second year of its operation and thereafter.

2) A head CT scanner should operate at a minimum of 900 medically necessary scans per year for the first year of operation and 1,350 medically necessary scans per year for the second year of its operation and thereafter.

3) There should be no additional scanners approved unless the operators of the equipment will set in place data collection and utilization review systems and make that information available to the MHSA on an annual basis.

4) No additional CT scanners (head and body or head only) should be approved for any geographic service area in Montana unless the utilization of each existing scanner in the geographic area will not decrease below the second year levels of (1) and (2) above as the result of the new service.

Based upon these criteria, no more than three CT scanners should be located in Montana until utilization levels can no longer accommodate patient demand for CT services presently being provided.

OBJECTIVES:

1) Through 1985 any new CT scanners must be properly justified for placement in Montana based on the following criteria: cost effectiveness, scope and value of services, accessibility, and availability of qualified personnel.

2) Head scanners may be placed within the same service area as whole body scanners only if the new service does not decrease the total scans of the older service to a level below 1,500 scans a year or is otherwise properly justified.

3) Third-party payors should be encouraged to include whole body CT scans as a reimbursable item.

4) CT Scanners in private offices which are consistant with the Health System Plan are determined to be in compliance with certificate of need regulations for reimbursement purposes.

RECOMMENDED REVIEW CRITERIAL:

1) Any facility wishing to purchase a CT scanner (head, or body) should be able to show it is financially feasible.

2) A CT scanner should be available for use at least 40 hours a week and more where demand or emergency situations dictate.

3) Because of the expensive nature of CT scanners, it is impractical to have one in every hospital. Therefore, CT scanners should be geographically distributed to assure accessibility, high utilization and reasonable patient charges.

4) In order to assure continuity of care, CT facilities should have written agreements with providers outside the facility assuring that those providers have equal access to the scanner, (for either inpatients or outpatients), cooperative use of the scanner, and prompt reporting of CT results to referring physicians.

5) Because the full range of CT's uses is unknown and utilization levels are necessary to maintain proficiency in CT scanning, utilization and quality review groups should be established. The Professional Standards Review Organization, a legally mandated peer review group, should perform this function.

6) Hospitals installing CT scanners should have the following service capabilities: a diagnostic radiologist with special interest and competency in CT; a neurologist or neurosurgeon; a thoracic and/or cardiovascular surgeon; a urologist, and adequate support staff.

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COMPUTERIZED TOMOGRAPHY (CT) SCANNERS

1.0 Background

First introduced in England in 1972, CT has become accepted as a diagnostic tool for a wide range of head and body anomolies. The CT scanner is a computerized X-ray system which can produce cross-sectional pictures of the head or body, including pictures of organs obscured in conventional X-ray photographs.

CT scans are becoming the primary study by choice (except in cases where specific diseases are to be ruled out by another method) over routine diagnostic studies such as radioisotope brain scanning, cerebral angiography, pneumoencephalography, and ventriculography.* Electroencephalography is in a seperate field from X-ray and is most often used in adjunct to those studies. CT scanning is the primary study because:

a) it is the least expensive as it can be done on an out-patient basis and the others are either more expensive to begin with or require up to a week's hospitalization.

b) the diagnostic ability of CT scanning can eliminate or generate the need for further, more complicated and more expensive studies. It also provides a means to study patients whose clinical history does not warrant a guantlet of testing but the clinician feels a positive answer is needed.

c) some examinations which were done routinely before CT scanning, such as pneumoencephalography and radionuclide brain scanning have been almost completely eliminated as primary examinations in institutions possessing CT scanners.

Currently, most of the new scanners being installed are full body scanners, even though in practice body scanners are used primarily for head scanning. Typical usage of body scanners indicates that they are more useful for the initial detection of disease in some organs, and more useful for evaluating already detected diseases in other organs.

Both the head and body scanners work by rotating around the area to be scanned, sending out X-ray beams. As these beams pass through the scanned area, they are detected by a device on the other side. The detector device registers the amount of radiation received and this information is fed into a computer, which in turn, through a process of simultaneous equation solving,

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*See glossary.

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arrives at a coefficient of X-ray absorpation for each portion of the scan. The CT scanner then gives a digital readout of the different densities of the area scanned. Each density valued is precoded to show a different shade of gray (or color on color pictures) and the computer finally arrives at a two dimensional picture of the area scanned, with third dimension calculations of the position of an object within the area scanned being possible.

2.0 Description of the Current Situation

Figure 1 shows the location of CT scanning units in Montana. There are presently two whole body scanners in Montana, one in Great Falls at Columbus Hospital and another in Billings in the offices of Eastern Radiological Associates. There is also one head scanner located at St. Patrick Hospital, Missoula, Montana. Table 1 indicates the number of CT procedures performed at these institutions in 1977. As indicated in Table 1, CT applications in Montana are in their initial stages of development.

Applications of CT scans in Montana indicate that head scan procedures are used more often than whole body scans. This trend is consistent with national figures.1) Both the relative diagnostic acceptance of head scans over body scans, and the fact that head scans are reimbursed by third-party payors and body scans are not may be responsible for the difference in CT utilization. Coupled with the fact that there are many conventional radiographic exams which are less expensive and take less radiation exposure by the patient and in some cases are more informative than CT scanning which can be used in diagnosis of thoracic and abdominal anomalies. Head scanning, however has fastly become recognized as the best, least expensive, and least traumatic way to study the brain. However, there continues to be discussion in the literature concerning the efficacy and cost-effectiveness of CT scanners3). At the present time, it appears that each set of scanning procedures performed in Montana cost approximately $300.

Advances in CT applications now include a mobile unit which may have applicability to small hospitals in rural areas.4)

3.0 Plan for Future Placement of CT Scanners

As CT scanning is a relatively new service in Montana, service areas and referral patterns have not been extensively developed. Service areas and referral patterns for CT service areas should continue to be examined in the future. As a facility offering CT scanning must necessarily provide a large commitment of time, staff, monies, etc. to the CT scanning operation, it is important to adequately understand developing service patterns and CT developments. Further, trends in type of scanner purchased, utilization, scanner ownership, etc. will all influence the development of CT scanning services in Montana.

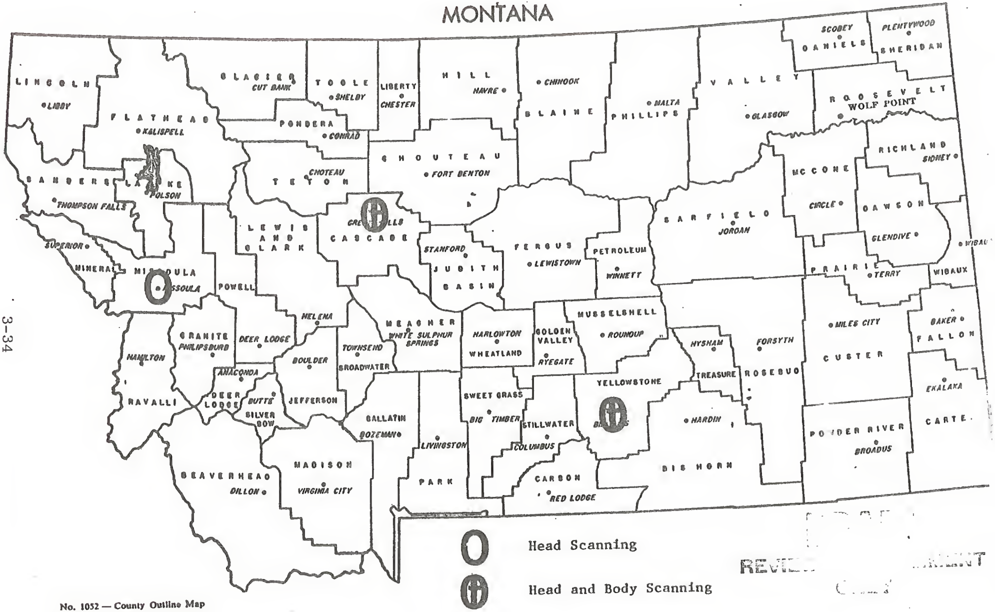

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Figure 1. - Location of CT Scanning Capabilities in Montana (1978)

Facility	Subarea	1977 Head Scans	 Body Scans	 Total	Annualized Estimate
St. Patrick Hospital[1] (Missoula)	NW	140	0	140[2]	840
Columbus Hospital[3] (Great Falls)	NC	145[3]	12[3]	157[3]	236
Eastern Radiological Associates (Billings)	SC	836	139	975	975

[1] Operational November 21, 1977.

[2] Data for November and December, 1977.

[3] Operational September, 1977. CT procedures were performed for only selected patients until the new facility was occupied in May, 1978, and all supportive services such as ICU, CCU, Emergency Room, and Radiology were available. Data from Columbus Hospital is not available. The fitures indicate the number of patients referred to Columbus Hospital From Montana Deaconess Medical Center for the period between October 1977 and June 1978

TABLE 1 - CT Procedures in Montana, 1977.

Three methods for determining the need for CT scanners have been used by other health planners and health providers.

These methods are:

- Minimum population needed to support a scanner.
- Number of other diagnostic procedures currently being performed.
- Geography.

To be statistically accurate, a projection of the minimum population needed to support a scanner should be based on either past utilization trends or on the incidence of disease among the population. Because CT is a new technology, past utilization trends are not available. Incidence of disease also is difficult to determine because the full range of diseases detected by CT is unknown. And in Montana, incidence data is not maintained on even those diseases, such as neurological disorders, which CT has proven useful in diagnosing.

Other states have used figures ranging from one scanner per 100,000 population to one scanner per HSA area, which in Montana, is the entire state. Montana's neighboring state, Idaho, has used a population figure of 250,000. 5)

A second method for estimating the number of scanners required in Montana is the number of other diagnostic methods currently being performed. Where CT has been installed, it has at least partially replaced some neurological procedures and is being used in addition to others. Table 2 shows the number of cerebral aniograms, pneumoencephalograms and brain scans done in 1975 and 1976 in Montana cities.

The Comprehensive Health Planning Council of Northern Virginia 6) estimates that 20 percent of cerebral angiograms, 75 percent of pneumoencephalograms and 90 percent of nuclear brain scans will be subjected to CT scans. Using this formula, one can arrive at the total number of head scans that can be expected in an area.

Head Scans = .2C + .75P + .9B

where C = cerebral aniograms
P = pneumoencephalograms
B = nuclear brain scans

Data on the number of expected body scans is more difficult to obtain because, again, the full scope of body scanning's uses is unknown. Those institutions which have CT body scanners have been using their machines primarily for head scanning. The ratio of head scans to body scans also varies from one institution to another, but generally from 75 to 90 percent of the scans done are head scans. 7)

Table 2

NUMBER OF DIAGNOSTIC PROCEDURES PERFORMED AT MONTANA CITIES, 1975, 1976, AND 1977

CITY	CEREBRAL ANGIOGRAMS			PNEUMOEN-CEPHALOGRAMS			BRAIN SCANS		
	75	76	77 **	75	76	77 **	75	76	77**
Missoula	279	416	--	123	111	--	747	925	--
Kalispell	38	45	--	2	4	--	140	237	--
Butte	4	0	0	0	0	0	304	102	471
Western Region	231	461		125	115		1191	1264	
Great Falls	405	397	--	111	64	--	1344	1365	--
Conrad	0	0	--	0	0	--	55	42	47
Helena	2	0	50	0	0	0	612	450	394
Havre	0	0	--	0	0	--	155	219	263
Lewistown*	0	0	--	0	0	--	20	34	--
Northern Region	407	397		111	64		2186	2110	
Billings	172	205	--	43	32	--	1042	882	--
Miles City	6	0	--	0	0	--	0	70	--
Bozeman	0	0	--	0	0	--	121	158	--
Southern Region	178	205	--	43	32	--	1163	1110	--
MONTANA	906	1063	--	279	211	--	4540	4484	--

*Lewistown is 105 miles from Great Falls and 128 miles from Billings, making it an area where regions will overlap.

**As per information received by 11/8/78.

Source: Data from Unpublished Surveys conducted by the Department of Health and Environmental Sciences (1975 and 1976) and the Montana HSA (1977).

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Figuring that 25 percent of the total scans would be body scans, one can add this to the previous formula to arrive at a total number of scans to be expected on a body scanner:

Total Scans = 4/3 Head Scans = 1.33 Head Scans

Using this formula, Montana as a whole could support three scanners, but no individual hospital could support a scanner without referrals from other hospitals. This means that Montana hospitals must share CT services.

This brings one to the third method for determining need for a CT scanner - geography. In Montana, there are three main medical service areas for specialized care: Missoula, Great Falls and Billings. Butte, Helena, Kalispell, Havre and Miles City are secondary service areas for specialized care. The Missoula area includes all of the area in Montana west of the Continental Divide; the Great Falls area includes the northern half of the state east of the Divide and the Billings area includes the southern half of the state east of the Divide. Some overlap exists in all three areas. Using the formula above, only the Great Falls area has more than 2,000 projected scans. But, because Montana encompasses a large geographic area, a CT scanner in each of these areas seems appropriate to assure accessibility.

All three of the above methods for determining need for CT scanners contain flaws, largely because need projections are limited by CT's newness and the many unknown factors surrounding its uses. However, at least the latter two methods tend to point toward a need for three CT scanners in Montana. More than three CT scanners in the state, at this time, appears to be premature because of the relatively sparse population in the state, the relatively high cost involved in providing CT and the possibility that current machines may become obsolete within a short period of time.

Table 3 summarizes the number of scanners required in Montana and each of the three main medical service areas, according to the methods used above for estimating service needs.

3.1 Justification for Exceptions to the National Guidelines

The following standards for CT scanners were published as part of the National Guidelines:

1) A Computed Tomographic Scanner (head and body) should operate at a minimum of 2,500 medically necessary patient procedures per year for the second year of its operation and thereafter.

CT SCANNERS NEEDED ACCORDING TO METHOD OF ESTIMATION USED

AREA	One scanner per 250,000 population[1]	Number of other procedures	Geography
Montana	3.4	3	3
Western Montana (Missoula)	1	0	1
Northern Montana (Great Falls)	1	1	1
Southern Montana (Billings)	1	0	1

[1] Montana's Estimated Population in 1985 is expected to be 859,728. None of the subareas, however, are expected to have populations over 250,000.

Table 3 - Estimated need for CT Scanners in Montana in 1985.

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2) There should be no additional scanners approved unless each existing scanner in the health service area is performing at a rate greater than 2,500 medically necessary patient procedures per year.

3) There should be no additional scanners approved unless the operators of the proposed equipment will set in place data collection and utilization review systems.

This plan deviates from these guidelines and proposes to use less stringent criteria, specifically 1,500 head and body scans for whole body scanners and 1,350 scans for units doing head scans only. The following presents the rational behind this departure from the National Guidelines.

As elsewhere in the United States, every effort must be made to contain costs of CT scanning procedures while providing an acceptable level of service. Appropriate utilization of the three CT scanners presently serving three geographical areas will prevent needless duplication and limit unnecessary health care costs.

Montana's geography and the location of three population concentrations lend themselves to the location of the three scanners where they are presently located. Levels of 1,000 scans for whole body and 900 head only scans for the first year, and 1,500 whole body scans and 1,350 head only scans for the second and successive years are appropriate exceptions from the 2,500 level as patient accessibility, quality of care (measured by utilization necessary for proficiency), and cost (measured by alternatives outside of Montana) indicate that the people of Montana will be adequately served by these levels.

Cost studies developed in major metropolitan areas indicate that higher utilization levels are attainable to lower cost per procedure of CT scans. As these studies are used both for determining minimum planning guidelines and maximum federal reimbursement mechanisms, the conclusion of these studies is inappropriately applied to Montana. National studies do not, due to their metropolitan bias, take into account accessibility requirements and quality of care requirements that would be denied to the people of Montana if conclusions from national CT studies were directly applied to Montana.

As the operators of CT scanners in Montana have informally agreed to submit to the Montana Health Systems Agency summaries of the data collected, the MHSA can continue to adequately plan the distribution and use of CT scanners in its health service area.

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REFERENCES

1. United States Congress, Office of Technology Assessment, Health Assessment Program, The Computed Tomography (CT or CAT) Scanner and Its Implications for Health Policy, Sept. 1976, pp. 21, 24, 26.

2. American Hospital Association, CT Scanners: A Technical Report, 1977, p. 15.

3. The Nation's Health, October 1978, pp. 12 and 8.

4. EMI-Scanner Shared Services CT, Northbrook, Illinois, October 1978

5. American Association of Comprehensive Health Planning, CT Scanning, Nov. 1976

6. Comprehensive Health Planning Council of Northern Virginia, "Capital Expenditure Review for the Purchase of a Computerized Tomography (CT) Scanning Device, " Nov. 19, 1975.

7. United States Congress, Office of Technology Assessment, Op. Cit.

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3.4

SUMMARY

END STAGE RENAL DISEASE

End stage (chronic) renal disease is defined as that stage of advanced kidney failure or renal functional impairment which can no longer be managed by medication or diet modification and requires dialysis or transplantation for the maintenance of life.

At present there are four acute general hospitals in Montana which provide ESRD care. They are located in Helena, Great Falls, Billings and Missoula.

The incidence of end stage renal disease is currently about 70 new patients per million population per year. One-quarter to one-half are transplant candidates. The remaining must be dialyzed approximately three times a week to stay alive.

The MHSA recommends that home, self-dialysis be emphasized in Montana. Where feasible, in concert with good quality of care, limited self-dialysis training programs should be provided by the dialysis centers in the state. Prevention programs such as hypertension screening efforts should also be emphasized in the next five years.

It is estimated that even with 50 percent of the Montana ESRD patients on home dialysis, the number of facility-based dialysis units will still have to be increased by 1985. Preference should be given to expanding existing facilities over establishing new units when this is done.

END STAGE RENAL DISEASE

GOALS, OBJECTIVES, RECOMMENDED REVIEW CRITERIA

GOALS:

1. Home, self-dialysis programs should be promoted in Montana. There is a strong indication that the demand for in-facility hemodialysis will increase through 1985. Because of the high cost of hospital based ESRD services and the geographic barriers limiting access to these hospital facilities in Montana, the need for home,self-dialysis programs is evident.
2. Programs dealing with the prevention of end stage renal disease should be developed in Montana.
3. All modes of treatment and rehabilitation should be available to all individuals with end stage renal disease.

OBJECTIVES:

- By 1985 home care programs should be developed to care for home dialysis patients, as well as the provision of the whole range of social services for all ESRD patients. Facilities providing ESRD services should provide or contract with agencies that do provide habilatative services.
- To urge physicians to implement the provisions of P.L. 95-292 so that payments to an individual assisting the patient in the dialysis procedures are a reimbursable expense.
- By 1980, hypertensive screening programs with methods of referral and follow-up should be developed in Montana.
- By 1980, educational programs directed to physicians and patients should be developed to emphasize the benefits of early diagnosis, treatment, and management.
- Research in the field of hypertension and kidney disease should be supported to aid in the development of preventive measures against end stage renal disease.
- Between 1976 and 1985, an increase in the number of cadaver kidneys available for use by patients for whom transplantation is the medically and personally preferable mode of treatment is needed.

- To support the medical community to solicit donors.
- To educate the public about the importance of kidney transplantation as a treatment method and the desirability of donating kidneys for this purpose.
- Guidelines specifying requirements for training programs must be developed. Standards should be established for the certification of technicians trained in dialysis.
- Home care self-dialysis training programs should be encouraged and the four existing ESRD service units should develop their own home care training programs when the volume dictates.
- Legislation for cost-formula reimbursement from Medicare should be encouraged to promote reasonable reimbursement to facilities providing end stage renal disease services.

Recommended Review Criteria for End Stage Renal Disease:

1. Existing maintenance dialysis units should be operating at or near optimal utilization before new units are considered. Optimal utilization is considered to be 80 percent for two treatment runs per day, six days a week. Facilities presently offering ESRD Units should expand this service before new units are established elsewhere.
2. Facilities proposing ESRD services should have provisions to assure that all modes of treatment and rehabilitation are available to all individuals with end stage renal disease.
3. Proposed renal support systems in Montana should maintain high quality standards in accordance with regulations set forth in detail in the Federal Regulations.

1.0 Background

End stage (chronic) renal disease (ESRD), or irreversible kidney failure, is defined as that stage of advanced kidney failure or renal functional impairment which can no longer be favorably influenced by died modification and medication.1) About 50 persons in each million are stricken with this condition eacy year.2) Glomerulonephritis (characterized by damage to the structure of the nephron, principally the glomerular portion) accounts for approximately 40 to 60 percent of all patients in dialysis or transplant programs; however, more and more ESRD patients have other complications too, primarily diabetes.

There are currently two methods of treating ESRD - transplantation or dialysis. A kidney transplant involves taking a kidney from a live family member of the patient or from a cadaveric donor and surgically implanting it in the ESRD patient. Between one-fourth and one-half of the patients with ESRD are considered suitable candidates for transplantation.3) However, far fewer actually have the operation - the availability of suitable donor kidneys being a major constraining variable. At the present time, no Montana facilities do kidney transplants. Most Montana patients go to Seattle for a transplantation.

The other treatment mode for ESRD is dialysis. Dialysis is a process in which waste products are removed from the body by diffusion from one fluid compartment to another across a semipermeable membrane. Hemodialysis and peritoneal dialysis are the two types of dialysis in clinical usage. Hemodialysis is the process by which blood is passed through an atrificial kidney machine and the waste products diffuse across a man-made membrane into a bath solution known as dialysate. The cleansed blood is then returned to the patient's body. In peritoneal dialysis, the waste products pass through the peritoneal membrane into the peritonal (abdominal) cavity where the dialysate is introduced and removed periodically.

Dialysis is used for both acute and chronic renal failure. Acute renal failure can result from drug ingestion or as a complication of major surgery. In these cases, the patient is administered hemodialysis as an inpatient.

However, the emphasis of this component is in the use of dialysis in treating the chronic ESRD patient. Regular (chronic) maintenance dialysis can be done in a facility on an outpatient basis or at home. It can be performed by the patient himself (after four to eight weeks of intensive training) or by a trained attendant. Because problems may arise, some other knowledgeable person should be present during the session. Dialysis treatments are typically scheduled two or three times a week for four to 10 hours.

For many stable ESRD patients, home dialysis appears to be the preferred method of treatment. Home dialysis, in maintaining the patient within his normal social environment and in promoting his independence from illness-oriented hospital care, offers the patient the best treatment modality in rehabilitation to a productive and meaningful life.

In addition, home dialysis is less expensive. A recent study indicates that the patient costs for facility dialysis is $24,500 per patient per year. For home dialysis, the first year's cost is $17,000 and $15,400 for each subsequent year.4) According to a Government Accounting Office report, the cost per patient per year on home dialysis ranges from $8,000 to $12,000 compared to a yearly per patient cost of $15,000 to $30,000 for institutionally based dialysis.5) Cost information supplied by an ESRD patient in Missoula indicates that the cost of home dialysis is approximately $32.00 to $54.00 per treatment run, or about $5,000 to $8,400 per year, depending on the lease agreement for the dialysis machine.6)

However, not all patients are candidates for home dialysis. Those persons living alone or without family support (physical, emotional, psychological and intellectual) as well as those who are too ill to manage at home are not likely home dialysis candidates. When both patient and partner work full time, center dialysis may be more convenient and less time consuming. If patient or partner has to quit work or go part-time, it may not be economically feasible or desirable to go on home dialysis if a center is convenient. Therefore, facilities providing chronic services need to be available.

ESRD is unique in that Medicare (P.L. 93-603) covers nearly all the costs of care incurred by ESRD patients. The cost of this program was $600 million in 1977 and is expected to increase to $1.9 billion in 1987.7)

Until recently, the ESRD program imposed disincentives on home dialysis. The passage of Public Law 95-292 is intended to erase these disincentives.

It should also be emphasized that much ESRD can be prevented or delayed. Hypertension screening programs to detect renal problems as well as complete evaluation and referral by primary physicians who find evidence of early renal disease can reverse or delay ESRD with therapy currently available.

2.0 Description of the Present Situation

Public Law 92-603, Section 29918) requires that all facilities providing ESRD services be organized into coordinated systems (networks) for the delivery of care, to be eligible for Medicare reimbursement. The state of Montana is serviced by

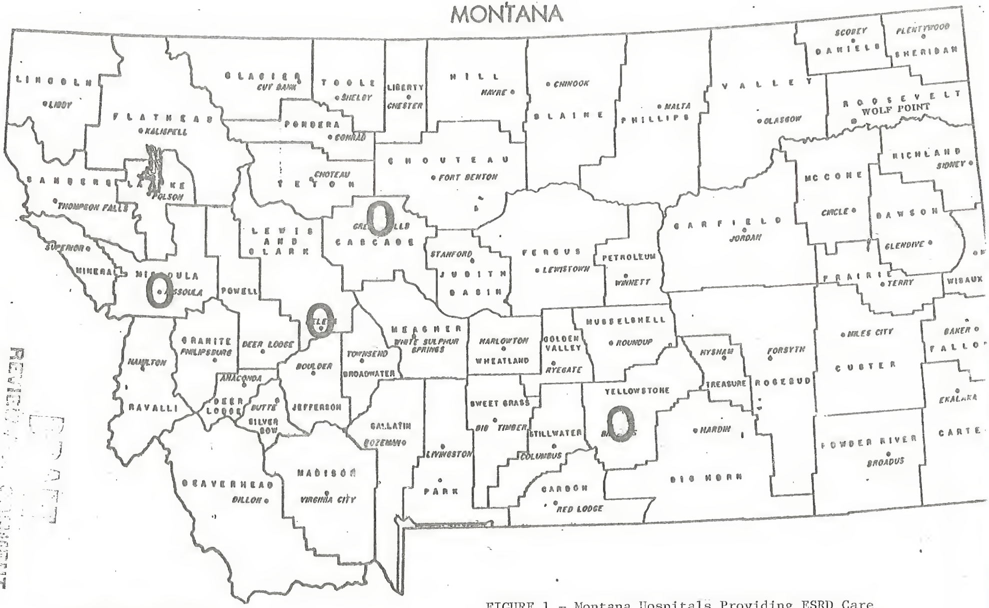

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FIGURE 1 - Montana Hospitals Providing ESRD Care

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the Federal End Stage Renal Disease Regional Network II, based in Seattle. Portions of northern Wyoming refer patients to Montana. Most candidates for transplants are referred to Seattle, Washington.

At present, there are four acute general hospitals in Montana which provide ESRD care. They are shown in Figure 1. Hemodialysis units are located in St. Patrick Hospital (Missoula), St. Peter's Hospital (Helena), Columbus Hospital (Great Falls), and Billings Deaconess Hospital (Billings). All four provide hemodialysis on both an acute and chronic level. Missoula, Helena, Great Falls (Columbus and Montana Deaconess Hospitals) and Billings provide peritoneal dialysis services, and Helena and Billings provide home dialysis training.

Over the past two years all four of the hospital-based ESRD units have performed a significantly greater number of dialysis treatments. In 1976, the combined total number of treatments for all four hospitals was 2,841, and 4,813 in 1977. This increase may be attributed to several things; the presence of a nephrologist in the area, increased knowledge by providers and consumers that one need not be left to die if one developes ESRD, and Medicare financial subsidization.

Table 1 shows the present status and utilization levels of each of the hospitals for the quarter ending March 31, 1978.

Training programs for potential home dialysis patients are presently offered in two of the four facilities. St. Peter's Hospital in Helena and Billings Deaconess currently conduct training programs. Columbus Hospital in Great Falls is in the process of developing a training program at this time. Many potential home dialysis patients in the western half of the state receive their training from Sacred Heart Medical Center in Spokane.

The concept of kidney patient self-help groups has been started in Montana. The first group, the Five Valleys Chapter of the Montana Kidney Patients Association, is organized to educate the public to the needs of a kidney patient; provide an organization of mutual assistance among kidney patients; and to work with elected representatives at the local, state and federal levels to influence legislation which would be of benefit to kidney patients. Presently, the group has 63 members.

3.0 Plan for the Future

3.1 Overview

This plan supports increased emphasis on home dialysis, but at the same time realizes that units must continue to be located in facilities around the state.

Furthermore, it is emphasized that renal support systems in Montana must maintain high quality standards in accordance with regulations set forth in detail in the Federal Regulations.8)

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	St. Patrick	St. Peter's	Billings Deaconess	Columbus
Total number of Hemodialysis Stations	2	3	7[1]	4[2]
Average of potential operating time: 12 hrs/day x 6 days/wk	144	216	504	216
Total number of patients	3[3]	11	22	7
Average treatment time: 6 hrs/day x 3 days/wk	54	198	396	198
% Utilization	38	92	79	92%

1) Six operating

2) Licensed for 4, only using three.

3) St. Patrick reported no patients for the quarter ending March 31, 1978, although 15 dialyses were performed for acutes, back-up, and for visitors.

SOURCE: Network Coordinating Council #2, Seattle, Washington.

TABLE 1 -- ESRD Unit Inventory for Quarter Ending March 31, 1978.

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The Network Coordinating Council #2 has drafted a tentative list of criteria for Certificate of Need applications. These criteria are intended for only new service applications.

A facility proposing ESRD services should not represent an unjustifiable duplication of existing renal disease service resources. Existing maintenance dialysis units should be operating at or near a realistic functional capability (80 percent utilization of two treatment runs per 11 hour days, six days a week for dialysis)9) before new units are undertaken. Preparation and clean up account for nearly 1½ hours time per treatment. A fully utilized hemodialysis station therefore should perform 44 treatments per month.

Optimal utilization (when occupancy reaches 80 percent on two runs per day)10) needs to be met before additional facilities are added or current services expanded.

Facilities providing ESRD services must assure that all modes of treatment and rehabilitation are available to all individuals with end stage renal disease. Skilled medical and nursing staff, support service staff, adequate facilities and equipment must be available on a 24-hour basis. Specific arrangements to accommodate ESRD patients on dialysis (to coordinate dialysis so as not to conflict with the patient's job, for example) must be attempted.

The medical community must be educated to solicit kidney donors. The public must be educated to the importance of kidney transplantation as a treatment method and the desirability of donating kidneys for this purpose.

3.1 Estimate of Service Need

In estimating the number of dialysis beds needed by 1985, several assumptions are made, namely;

- Each year, at least seventy new patients out of every million persons will develop end stage renal disease.11)
- Twenty percent of all end stage renal disease patients are eligible candidates for kidney transplantation.12)
- Among those individuals who are eligible for dialysis, at least fifty percent can be placed on home dialysis. The remaining fifty percent will remain on center dialysis.13) Some authorities suggest that as many as 85 percent are eligible for home dialysis.
- A fully utilized dialysis station should perform approximately 499 dialyses per year, assuming an average of two treatment runs per day, six days per week, and adjusted for an optimal utilization of 80 percent.
- Each ESRD patient will undergo dialysis approximately 156 times per year, based on 3 dialyses per week for 52 weeks.

Table 2 summarizes the state and subarea 1985 need for dialysis units based on these assumptions. The South Central and Eastern subareas are combined since there are presently no facilities in the Eastern subarea offering ESRD services. It is assumed that this subarea would be served by Billings Deaconess Hospital, even though accessibility may dictate that home dialysis should be encouraged for this subarea. Based on the above assumptions, Montana could use an additional 22 dialysis stations by 1985. However, before any application of the bed need estimates are initiated, a more indepth study should be undertaken to better assess the need for the dialysis units. Changing patient use patterns make the use of these assumptions in estimating the need for dialysis units superficial. For example, nearly all of the ESRD patients in the Missoula area are on home dialysis, therefore, the estimate for facility-based dialysis units is overstated.

Training programs for home dialysis patients usually involve six weeks of instruction and training. Therefore, if the assumptions used previously to estimate the need for dialysis units are applied to estimate the need for home dialysis training programs, Montana would only have three people per class, eight classes per year; if each class lasted for six weeks. This assumes that about 23 people from Montana will be in need of a home dialysis training program every year until 1985. (Refer to Table 2.)

3.3 Justification for Exceptions to the National Guidelines

The ESRD Network #2 has already found that the facilities in Montana cannot conform with the ESRD regulations and has granted exceptions to them. It is not considered necessary to repeat their rationale for these decisions here.

	North Western	North Central	South Western	South Central and Eastern	State
Estimated 1985 Population (in 1,000's)	206.1	156.8	205.8	291.0	859.7
Estimated New ESRD Patients in 1985	14	11	14	20	60
Total Estimated New ESRD Patients (1979-1985)1)	95	77	99	136	404
Total ESRD Patients Eligible for Kidney Transplant (1979-1985)2)	21	14	21	28	81
ESRD Patients Remaining on Dialysis (1979-1985)	74	63	75	108	323
Home Dialysis3)	39	35	40	56	163
Number Surviving Until 19854)	32	28	32	45	130
Facility Dialysis	35	28	35	52	160
Number Surviving Until 19855)	27	21	27	40	123
Total Dislysis Expected in 19856)	4,212	3,276	4,212	6,240	19,188
Dialysis Stations Needed in 1985 7)	8.44	6.56	8.44	12.50	38.44
Number of Dialysis Stations Existing	2	4	3	7	16
Additional Dialysis Stations Needed 1985	6	3	5	6	22

1) Assumes that 70 people per million per year will develop end stage renal disease. Average of national estimate of 50/1,000,000 and ESRD Network Coordinating Council #2 estimate of 90/1,000,000.

2) Assuming 20 percent are eligible for transplants. ESRD Network Coordinating Council #2, Seattle.

3) Assuming 50 percent are eligible for home dialysis, Network Coordinating Council #2, (NCC #2).

4)&5) End of Year Survival Rates, Table 1, Predicting Treatment Costs-Life Expectancy for ESRD, Stange-Sumner, The New England Journal of Medicine, Feb. 15, 1978, p. 374.

6) The number of ESRD patients utilizing facility dialysis and surviving in 1985 multiplied by the number of dialyses per patient per year, assuming a patient must undergo dialysis three times weekly.

7) A fully utilized dialysis station is used twice daily, six days per week, 52 weeks per year.

TABLE 2 - Estimated Need for Facility ESRD Dialysis Units in Montana by 1985.

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11) Average of National Estimate of 50/1,000,000 and ESRD Network Coordinating Council #2 Estimate of 90/1,000,000.

12) Personal Communication, ESRD Network Coordinating Council #2, Seattle, Washington.

13) Personal Communication, ESRD Network Coordinating Council #2, Seattle, Washington.

Kidney Patient's Prayer

Dear God, please listen closely
As I pray to you today
With thanks for help, and pleas for more,
There's so much I want to say.

I am so thankful you have found the time
To give me extra life.
Thanks for the help of my companion,
In my case - a loving wife.

Please be with those much less fortunate,
As they suffer pain and fear.
May they find you ever present
And keep you ever near.

The machines which we depend upon
Are appreciated much
But they're not all that fulfilling,
If we ignore your tender touch.

Stan Cloke 8/78

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3.5

SUMMARY

NEONATAL INTENSIVE CARE UNITS

Hospital services for the premature newborn are categorized in this component as levels I, II and III. Level III units are restricted to Medical school environments and so are not found in Montana. Level I units are functioning to provide for the uncomplicated maternity and newborn patient services. Level II units are located in the larger urban and suburban hospitals providing a full range of maternal and neonatal services requiring trained staff and modern equipment.

The concept being suggested in this component is to strengthen the regional network which has already developed in Montana. Currently there are six hospitals in Montana delivering neonatal intensive care services. It is suggested that three of them - Billings, Great Falls and Missoula - be classified as Level II Regional Centers. The other three should continue to provide limited neonatal services to their surrounding communities.

The number of beds needed in 1985 for those hospitals with neonatal services are indicated. Using the model suggested by the HSA, the state will need approximately 52 neonatal beds in 1985.

The MHSA would encourage physicians at level I facilities to recognize and use the regionalized system of referral and transport and seek funding for physician directors of level II units.

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NEONATAL INTENSIVE CARE UNITS

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

To reduce perinatal morbidity, mortality, and sequelae of birth associated events in Montana.

OBJECTIVES:

1) Describe a system of regionalization of neonatal services, by 1985, that includes the available services and difference in services between level I and II facilities.

2) Seek funding for physician directors of level II units.

3) Encourage the physicians at level I facilities to recognize and use the regionalized system of neonatal referral and transport.

4) Determine the linkages necessary to involve the obstetrician in the neonatal intensive care unit network.

RECOMMENDED REVIEW CRITERIA:

1) Any regionalized system (opposed to a fragmented system) will incur costs for consultation, transportation, special equipment, personnel education, and physician directors. This increase in costs should be compared to savings over the expense of services offered through a fragmented system.

2) Due to the nature of neonatal intensive care, level II personnel and equipment must be available on a 24-hour, seven day a week basis.

3) Level II neonatal intensive care units should be developed in hospitals where the number of live births is in the range of 1,500-2,000. Established referral patterns from level I to level II help provide efficient and appropriate transfer of the neonate in need of intensive care services.

4) The physician at the initial level of care who will be primarily responsible for initiating requests for consultation must have the opportunity to participate in the mother's care as she and/or her infant move through the regional system.

5) Lines of communication between hospitals and physicians must be established and maintained in such a way that consultation in both directions is readily available.

6) Education of the physician and nurses in the level I hospital is essential to identify high risk mothers and possible neonatal problems.

7) Provision must be made to insure the expeditious return of mothers and/or infants to the most convenient facility qualified to provide the level of care needed.

8) Level II facilities should develop adequate transport arrangements with level I facilities to assure necessary care of the neonate in need of intensive care service. Level II units are differentiated from level I units primarily by the level II unit's ability to provide respiratory care to the neonate.

1.0 Background

Hospital services for the infant can be categorized into three levels of care - levels I, II and III. Level III units are restricted to medical school environemtns and are not found in Montana. Level I and II units are defined as follows:

Level I

These are hospitals whose function is to provide services primarily for uncomplicated maternity and newborn patients. The number of deliveries in these hospitals is too low to provide an adequate economic base for complex obstetric and newborn care and to provide the caseload needed to attract the necessary staff.

The critical considerations in the care of patients anticipating delivery in these hospitals are the earliest possible detection of the "high risk" parturient and newborn and the availability of trained personnel and facilities to provide competent emergency obstetric and newborn care.

In metropolitan and suburban areas, such units should be encouraged to consolidate into larger services in one or two hospitals. Geographic remoteness or difficulties in transportation may demand that some level I units continue in operation, but these must be assisted in developing channels for consultation, referral and transport for mothers or infants with complications.1)

Level II

Level II units will be located in the larger urban and suburban hospitals where the majority of deliveries occur. The number of these units will increase as smaller local hospital units are consolidated. These level II units will provide a full rage of maternal and neonatal services for uncomplicated patients and for the majority of complicated obstetrical problems and certain neonatal illnesses. They will have a highly trained multidisciplinary staff and modern, well maintained equipment.

While level II hospitals will vary considerably in their capabilities, the volume of serious obstetrical complications and the number of very sick newborms in most of these hospitals may not be sufficient to justify the establishment of a comprehensive intensive care perinatal unit and

> thus a few patients with severe obstetric complications and some seriously sick newborns may, after consultation, be transferred to a level III unit.
>
> In some regions, a level II hospital may, because of a demonstrated need, upgrade its capabilities to become a level III unit. In other regions, two level II hospitals may consolodate their obstetrical and newborn services to become a level III center.2)

This component will concentrate on the level II units and other facilities offering neonatal intensive care services in Montana. These units are specially designed to provide maximum support of the sick, prematurely born, and term-infants during the neonatal period (first 28 days after birth). They utilize specialized facilities, equipment, and specially trained personnel to accomplish its function of caring for the neonate.

Typically, those conditions and illnesses treated in neonatal units are:

1) prematurity;

2) respiratory disease, birth asphyxia, hyaline membrane disease*, etc;

3) congenital heart disease;

4) other congenital anomalies;

5) infectious disease including sepsis*, meningitis*, pneumonia; and,

6) metabolic diseases.

These six conditions and illnesses account for approximately 80 percent of all infant (under one year) deaths.

After correcting for variables such as social class, maternal age, parity*, and race3); gestation age and birth weight are the best indicators of whether or not a baby will survive past the neonatal stage. Infants who weigh less than 2,500 grams (5½ pounds) have a death rate of about 22 times greater than those babies who weigh more than 2,500 grams. These lower weight babies account for two-thirds of all neonatal deaths4). Prior to the establishment of level II units, those low weight infants that did survive the neonatal development period were subject to a high probability of neurological damage.

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* See Glossary

The care rendered by level II units is expensive. There are no local estimates for the costs of delivering this care in Montana. A recent study of Cedars of Lebanon Medical Center, a level III center, indicated the average cost for a surviving infant under 1,200 grams is $40,287. If the statistic were adjusted for non-survivors, the cost per survivor (under 1,200 grams) is $61,641.5) Dr. John Whittinghill, MD of Billings estimates the average cost for infants over 1,200 grams is between $20,000 and $25.000 nationally.

To provide adequate staffing patterns in a level II unit, 24-hours a day, it is necessary the individuals working in the unit be used effectively and provided only to the extent needed. The special equipment and specially trained personnel directly involved in the unit require a minimum level of work to maintain an adequate level of proficiency as well as an adequate level of usage to efficiently use support equipment.

Table 1 estimates the population served by each unit, presents some basic utilization and staffing statistics, and identifies the primary level III center used by each Montana unit.6)

Based on these statistics, Billings, Great Falls, and Missoula re considered level II units. Butte, Kalispell and Bozeman do not appear to have the case load and staffing to be large regional centers. They do, however, provide some level II services to their surrounding areas.

All six of the hospitals have 24-hour lab service, 24-hour X-ray service, Cardiac, Respiratory, and Blood Pressure Monitors. All except Bozeman Deaconess have respirators. Great Falls and Missoula have capability to provide hyperalimentation (the administration of a greater than optimal amount of nutrients).

Regionalization and specialization describe the two major trends in providing intensive care to the neonate. These trends can be characterized as follows:

- the consideration of obstetric services among hospitals in order to provide a base of at least 1,500 to 2,000 deliveries, and thus consolidation of a high number of anticipated neonatal problems,
- the development of regional centers for high risk delivery services with intrapartum ICU's.
- the consolidation of neonatal intensive care cases in regional centers for optimal care of the neonate and for cost-effectiveness for the hospital supplying the service.

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	Billings (St. Vincent's Hospital)	Great Falls (Montana Deaconess Medical Center)	Missoula (Missoula Community Hospital)	Butte (St. James Community Hospital)	Kalispell (Kalispell Regional Hospital)	ozeman (Bozeman Deaconess Hospital)
Area Served	Eastern and South Central Montana and Northern Wyoming	North Central and Northwest Montana	Southwest Montana	West Central Montana	Northwest Montana	Southwestern Montana
Approximate** Service Area Size	220,400	170,000	124,300	63,600	75,950	70,400
Approximate No. of Births in City, 1977	2,000	1,550	1,300	900	700	662
Approximate No. of Births in Area, 1977	6,000	2,300	1,900	1,300	1,500	1,000
Neonatal Patient Capacity	10	8	6	4	3	2
Pediatricians Providing Neonatal Intensive Care Services	8	4	6	1	3	3
Obstetricians Providing High Risk Obstetric Services	8	7	9	3	4	4
Primary Level III Unit Utilized	Denver	Seattle	Salt Lake	Salt Lake (Seattle)	Salt Lake	Salt Lake

Table 1 – Characteristics of Facilities in Montana Delivering Neonatal Intensive Care Services

Source: Perinatal Intensive Care in Montana (first draft); Data from Bozeman Deaconess were submitted by the provider.

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- the involvement of both the father and the mother in prenatal education, the birth process, and infant contact during the first days of life,

- use of neonatologists (board certified pediatricians with specialized training in neonatology) in the care of high-risk infants,

- complex diagnostic and treatment procedures, and intensive physiological maternal and fetal monitoring.

2.0 Description of the Current Situation

Currently, there are six hospitals in Montana delivering neonatal intensive care services. The cities in which these are located and their respective catchment areas are shown in Figure 1. As shown in the figure, the service areas are not clear cut, with several outlying counties claimed by more than one neonatal service.

With respect to obstetrical services, only Billings and Butte use a standard method for identifying high risk pregnancies. All six hospitals have sonography (ultrasound), fetal monitors, and amniocentesis and L/S ratio capability (tests to obtain amniotic fluid and to see if the baby's lungs are mature). Billings and Great Falls indicate they also have the capability to do a caesarian section within 30 minutes or less if needed.

All units, except Bozeman, provide neonatal transport service to their facility. In 1977, Billings transported 60 patients; Great Falls, 41; and Missoula, 25. Data is not available from the other centers. All of the units depend upon their level III referral source for transport out if needed.

3.0 Plan for the Future

3.1 Overview

The intent of this plan is to strengthen the regionalization of neonatal services currently underway in Montana.

3.2 Estimate of Service Need

Table 2 indicates the estimated number of beds needed in 1985 in the units currently serving the state. These estimates were based on the following assumptions.

	Billings	Great Falls	Missoula	Butte	Kalispell	Bozeman	State
Estimated 1985 Population of the service area	164,395	165,268	135,903	91,774	72,991	58,648	859,728
Estimated number of births in 1985	3,168	2,760	2,237	1,339	1,209	870	14,392
Estimated number of premature (less than 5 lbs 8 oz.) infants born	193	203	136	108	74	56	958
Estimated number of patient days in neonatal	2,899	4,065	2,035	1,626	1,116	845	14,369
Estimated number of neonatal beds needed	10.6	11.1	7.5	5.9	4.1	3.1	52.5

TABLE 2 - Estimated Number of Neonatal Intensive Care Beds Needed in Montana in 1985

1) The catchment areas indicated by the 1975 data (number of births by residence vs. number of births by occurance) reflect the pattern to be observed in 1985.

2) The increase in the number of births will be the same as projected population growth.

3) The percentage of premature babies (those under 5 pounds, 8 ounces) in 1985 will be cared for in the units in Montana.

4) Each intensive care newborn occupies a bassinet an average of 15 days.7)

5) The annual average occupancy rate of a unit should be 75 percent.8)

The state need shown in the table is 52.5 beds. If the criterion in the National Guidelines were used (4.0 beds/1,000 births), Montana would need 56 beds. Both of these figures are greater than the sum of the individual units because not all counties are contained in the catchment areas of the individual units.

Based on these estimates, it appears Montanans should support the designation of the Billings, Great Falls and Missoula units as level II units. The other three services, in Butte, Bozeman, and Kalispell, cannot be considered level II units because of insufficient case loads.

3.3 Justification for Exceptions to the National Guidelines

The National Guidelines published on March 28, 1978, establish three criteria for Neonatal Special Care Units. They are:

1) Neonatal services should be planned on a regional basis with linkage with obstetrical services.

2) The total number of neonatal intensive and intermediate care beds should not exceed 4 per 1,000 births per year in a defined neonatal service area.

3) A single neonatal special care unit (level II or III) should contain a minimum of 15 beds.

The guidelines go on to indicate that adjustments can be made for a high rate of high risk pregnancys and where geographic remoteness are problems.

Neonatal services in Montana can be, and are, planned on a regional basis with linkages with obstetrical services. Linkages have been established between the outlying hospitals (level I units) and the level II units, and between the level II units and the out of state level III units. As the total population of Montana is under one million and no level III center exists, providing level I and level II services with direct in-state linkages to various out of state level III facilities is justified to provide the people of Montana with appropriate neonatal services. It must be recognized, however, that the quality of that neonatal care is dependent upon the flexibility to maintain services at levels less than suggested by national health planning guidelines.

It is suggested that Montana qualifies for exceptions to the second and third criterion, especially the third. As shown in Table 2, a unit of 10 beds appears to be more appropriate to Montana's needs.

While both U.S. and Montana infant mortality rates have been decreasing, Montana has consistently exhibited a higher infant mortality rate than the national average. At the same time, percentage of infants under 5 pounds 8 ounces has consistently remained between 6.7 and 7.4 percent over the past six years. (See Table 3)

Consistent with the widely dispersed population concentrations in Montana and large number of smaller outlying areas, travel time (especially in the winter months, typically November to April) is hazardous. Lowering the minimum number of beds in a level II unit to ten is consistent with providing adequate services to the people of Montana.

	United States			Montana			Percentage of infants below 5 lbs.
Year	Total	White	Other	Total	White	Other	
1971	19.1	17.1	21.5	21.6	21.4	23.2	7.4%
1972	18.5	16.4	27.7	19.7	19.0	25.3	7.4%
1973	17.7	15.8	26.2	19.5	18.5	27.4	6.9%
1974	16.5	14.7	24.6	16.5	16.3	17.9	6.9%
1975	15.1	14.2	24.2	15.5	15.6	14.7	7.1%
1976	15.1			16.6	16.5	17.0	6.7%

Table 3 - Infant Mortality Rates
1971 - 1976.

Source: Proceeding from Perinatal Intensive Care Services in Montana (first draft), and Montana Vital Statistics Reports.

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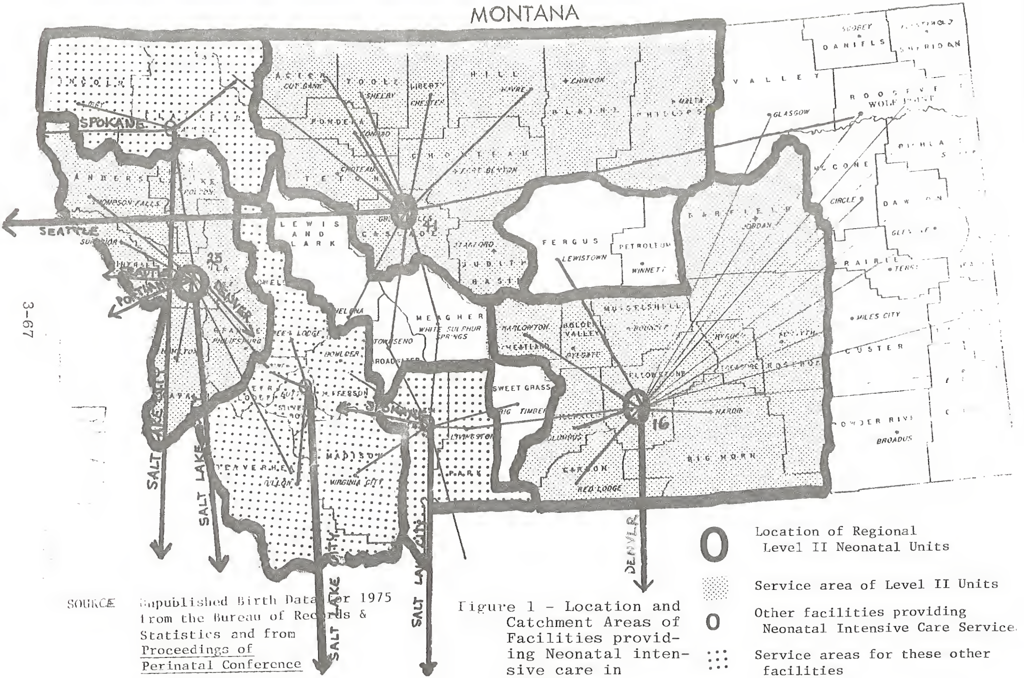

SOURCE Unpublished Birth Data for 1975 from the Bureau of Records & Statistics and from Proceedings of Perinatal Conference

Figure 1 - Location and Catchment Areas of Facilities providing Neonatal intensive care in Montana

O Location of Regional Level II Neonatal Units

▒ Service area of Level II Units

O Other facilities providing Neonatal Intensive Care Service

⁙ Service areas for these other facilities

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3) A.T. Fort, "Adequate Prenatal Nutrition", Obstetrics and Gynecology, 37, February 1971, pp. 288-298.

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3.6

SUMMARY

POISON CONTROL SERVICES

Poisonings are the fourth most frequent cause of accidental deaths. There are an estimated 7,500-9,000 poisonings per year in Montana. Ninety percent of these involve children, however, 90 percent of the fatalities due to poisoning involve adults. An average of 35.2 poisoning deaths occur each year in Montana. No comprehensive poisoning reporting system exists for the number of poison victims treated, the type of poisoning agent or the setting where the patient was treated.

Poison control has four major facets: prevention, information, laboratory analysis, and treatment. This component outlines the poison control system, including Home management, Basic treatment facilities, Primary treatment facilities, Secondary treatment facilities, Tertiary treatment facilities, Regional information Centers and Subregional Information Centers.

Information available in the component would indicate Montana could not support a regional poison information center or tertiary treatment facility. Because Montana encompasses a large geographical area with sparce population, an intermediary may be needed between out-of-state regional centers and in-state treatment facilities and poison information callers. A subregional center could meet this need.

In order to assure all Montanans have access to the best possible poison information and treatment, the poison control capabilities of all hospitals in Montana should be identified and included in the statewide Emergency Medical Systems hospital categorization process, and all hospitals should have at least primary poison treatment capabilities.

The MHSA recommends consumer oriented education programs be developed with only one subregional poison information center located in Montana.

POISON CONTROL SERVICES

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

To assure that all Montanans have access to the best possible poison information and treatment services available.

OBJECTIVES:

1. By 1980, the poison control capabilities of all hospitals in Montana should be identified and included in the statewide Emergency Medical Systems hospital categorization process.
2. At a minimum, Missoula, Great Falls, and Billings should provide secondary poison treatment facilities. All hospitals in Montana should have at least primary poison treatment capabilities.
3. By 1985, alternative poison control strategies should be explored for Montana and the cost effectiveness of each strategy should be examined.
4. By 1985, consumer oriented education programs should be developed emphasizing poison prevention and treatment strategies for the citizenry of Montana. Existing programs should be utilized where applicable.

RECOMMENDED REVIEW CRITERIA FOR A SUBREGIONAL POISON INFORMATION CENTER IN MONTANA:

1. Only one subregional poison information center should be located in Montana.
2. A subregional poison information center should provide a single, toll-free statewide telephone number.
3. The subregional information center should be located with or within close proximity to a secondary poison treatment facility.
4. Provisions should be made to provide poison prevention education and training in poisoning treatment to all hospital staffs throughout the state.
5. Arrangements should be made to have all hospitals and others treating poisoned patients to report all poisonings to the subregional center, which in turn will report all poisonings to the National Clearinghouse for Poison Control Center.

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6. The Montana subregional poison information center should be supported by public funds, and the potential sources of these public funds should be identified and the feasibility of obtaining these funds investigated.

7. The subregional information center should have a medical director, a clinical pharmacist or a physician knowledgeable in toxicology, nurses or pharmacists trained to handle poison calls, and specialty consultants at either the regional or subregional levels.

8. To maintain proficiency, subregional staff should have periodic training sessions with regional center personnel.

9. A subregional information center should have immediate access to a medical library, standard textbooks on poisonings, poisindex or toxifile or some frequently updated card or microfilm resource.

1.0 Background

All patients with exposures to or toxic manifestations of drugs or other chemicals require some kind of poison control. This includes patients who have been accidently poisoned or who are experiencing the toxic effects of drug abuse, intentional drug overdose, or drugs given for therapeutic purposes.

Poisonings are the fourth most frequent cause of accidental deaths. There are an estimated 7,500-9,000 poisonings per year in Montana. Ninety percent of the poisoning cases involve children, whereas ninety percent of the poison fatalities occur among adults. Table 1 summarizes the number of poisoning fatalities for the period 1972-1976. For this five year period, an average of 35.2 poisoning deaths occured in Montana each year.

YEAR	ACCIDENTAL POISONINGS	SELF-INFLICTED POISONINGS	TOTAL POISONING DEATHS	POPULATION
1972	9	9	18	719,000
1973	19	12	31	721,000
1974	26	19	45	735,000
1975	14	22	36	748,000
1976	27	19	46	753,000
Five Year Average	19	16.2	35.2	735,200

TABLE 1 - Poisoning Deaths in Montana 1972-1976

SOURCE: Montana Vital Statistics, State Department of Health and Environmental Sciences, the Bureau of Records and Statistics, Helena, Montana.

Obtaining reliable poisoning data is a problem because no comprehensive poisoning reporting system exists for the number of poisoned victims treated, the type of poisoning agent, and the setting where the patient was treated. An annual survey

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of a sample of U.S. hospital emergency rooms resulted in estimates that 175,365 consumer-product related poisonings were treated in hospital emergency rooms during 1976. The surveyors estimated that 38 percent of all emergencies are treated at emergency rooms, with 41 percent treated by doctors, 18 percent treated at home and 3 percent treated as hospital inpatients. Therefore, it can be estimated that approximately 460,000 consumer-product related poisonings occurred in 1976. However, the number managed at home, with supervision from poison information centers, may be considerably higher than these estimates. Data from major regional poison information systems indicates that approximately 80 percent of poisonings in their areas are managed at home.1)

2.0 Description of Current Situation

Poison control has four major facets: prevention, information, laboratory analysis, and treatment.

Prevention consists of activities such as safety packaging and labeling, and consumer education. The purpose of information and laboratory analysis is to help determine the proper treatment for a poisoned patient. Information about the toxic effects of and proper antidotes for various drugs and chemicals must be collected and stored so that it is readily available when a poisoning occurs. When a toxic substance is unknown or a severe poisoning requires continual monitoring, the back-up of a toxicology laboratory is necessary.

Poisoning treatments depend on the type and severity of the poisoning agent. Some of the most common treatment forms include inducing vomiting, administering antidotes, administering demulcents or soothing agents, lavage or irrigation. Most severe poisonings sometimes require administration of intravenous fluids, cardiopulmonary resuscitation, renal support or other specialized care.

One way to manage poisoned patients is through a system which coordinates the four poison control components listed above. Following is an outline of a poison control system including five levels of treatment services and two levels of information services: 2)

- Home Management can be appropriate when the poisoning is asymptomatic or only mild symptoms are expected or exhibited. Home treatments include initiation of simple irrigation, administration of soothing agents, or induction of vomiting by someone at the poisoning scene.

- Basic Treatment Facilities are emergency areas staffed by personnel able to recognize a poisoning emergency, initiate physiologic life support and arrange, if necessary, the rapid and safe transfer of the patient to an appropriate definitive care facility. Basic facilities can treat patients who require the help of trained personnel, but who do not require hospitalization.

- Primary Treatment Facilities treat patients whose poisonings are readily reversible by vomiting, antidotes or lavage and who do not require admission to intensive care units or respiratory or analytical laboratory support. Primary facilities must have an emergency room and in-patient observation beds.

- Secondary Treatment Facilities treat poisoned patients who are expected to respond to care such as respiratory support and non-dangerous antidotal therapy. The patients treated at these facilities need only periodic follow-up by analytical laboratory observations. Secondary facilities must have an emergency room, in-patient observation beds, limited laboratory capabilities, and an intensive care unit, with appropriate support personnel.

- Tertiary Treatment Facilities provide comprehensive poisoning treatment services, access to a full range of toxicology laboratory services, and transportation for critically ill patients to the facility. Severely poisoned patients who require dangerous antidotal therapy, hemodialysis, constant analytical laboratory monitoring, and/or multidisciplinary physician support are handled at the tertiary level.

The two levels of information services are:

- Regional Information Centers provide comprehensive poison information and consultation to health professionals and consumers, a communications system adequate to ensure rapid reception and transmission of information to the entire area served, professional and public education programs and collection and dissemination of poisoning experience data. Regional Information Centers are usually co-located with tertiary treatment facilities and may serve a city, part or all of a state, or several states, depending on the target population.

- Subregional Information Centers are an arm of the regional information center and serve as a filter for the less severe and less difficult calls in their areas. They are the initial contact points for the public and health professionals in their areas, but the regional center is consulted when necessary. Direct communication links, such as toll-free telephone lines and telecopiers, are established between the two centers.3)

During the past several decades, a large number of new chemicals, new household products and new drugs have been introduced, creating a greater threat of poisoning. Because of the quantity of products and their newness, physicians are not always familiar with their characteristics or toxic effects. This creates a need for a central, readily available source of data on potential poisons.

Five Montana hospitals, Montana Deaconess Medical center in Great Falls, St. Vincent Hospital in Billings, St. Peter's Hospital in Helena, Deaconess Hospital in Bozeman, and Community Hospital in Missoula, have limited poison control information capabilities.

Montana Deaconess Medical Center in Great Falls has a toxifile system and a library of reference material. Poison related telephone calls are answered by nursing personnel through the emergency department. As of April, 1977, the center has instituted a call back system at one-half hour and two hour intervals. The center receives approximately 400 calls per year. St. Vincent Hospital in Billings provides a seperately listed number for poisoning related telephone calls. These calls are also answered by emergency room staff. St. Vincent's also offers a program of poison prevention and education for young children. This program centers around a cartoon character called "Officer Ugg". Children are taught not to touch, taste, or smell anything on which "Officer Ugg" appears. This approach has been proven especially effective with preschoolers. Poison information services at St. Peter's Hospital are located in the hospital pharmacy, with pharmacists dispensing information on a part-time basis. Deaconess Hospital in Bozeman and Community Hospital in Missoula have poison resource libraries located in the emergency rooms, with emergency room personnel giving out poison information to both the public and professionals.

In addition, the School of Pharmacy at the University of Montana in Missoula often receives drug and poison information calls, as do private physicians. Information is provided for a variety of accidental poisonings as well as continuing education services for educational programs on poison control.

Data provided by St. Vincent Hospital in Billings indicates that the cost of updating their Poison-Index was approximately $975.00 during 1977. In 1978 to date, $1,795 has been used for the "Officer Ugg" program, (stickers, right to copy, etc.). The cost of printing pamphlets was $240 and approximately $100 has been utilized for miscellaneous handouts and mailing. Approximately 25 hours RN time has been spent at day care centers introducing this program.

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Calls needing more extensive information than is available in Montana are referred out of state to regional poison control centers in Salt Lake City, Utah; Denver, Colorado; Spokane, Washington; and Seattle, Washington. In a survey of 10 major regional information centers, the Rocky Mountain Poison Control Center in Denver found that 10,000 to 12,000 calls a year per million population was the norm.4) During 1977, these centers received 522 poison related telephone calls from Montana. The Intermountain Poison Control Center in Salt Lake City received 65 calls from Montana, the Rocky Mountain Poison Control Center in Denver received 168, and the Spokane Poison Control Center received 289 calls for poison information during 1977. Data from the Center in Seattle is not available at this time.

The greatest need in the area of poison control services is in the public sector. This involves provisions for patient access and information about products, prevention and treatment. There is a great need for educating the public on how to treat a poisoning case. Home management, under the direction of a poison information center, can often allow a quicker reaction to a poisoning, and therefore, promotes better care. Because it cuts down on the number of emergency room and physician office visits, home management saves the consumer money. A survey of regional poison information centers already in existence showed that more than 80 percent of all poisoning incidents called into the centers were treated effectively at home, with telephone supervision.5)

Intensified educational programs for professionals is also necessary concerning resource information, consultation and referral services, as well as available treatment facilities.

Funding has recently been obtained for a one year period through the Emergency Medical Services Bureau to utilize the Rocky Mountain Poison Control Center as the poison control center for Montana. The Rocky Mountain Poison Control Center, located in Denver, is to provide telephone coverage around the clock for Montana. Secondary treatment centers will be located in Billings, Great Falls, and Missoula. Specific objectives under this proposal are:

- -to establish a poison prevention program in Montana by contracting with the Rocky Mountain Poison Control Center for the provision of poison prevention materials to be disseminated to local health departments, hospitals, and EMS councils,
- -to provide a statewide publication of the toll-free telephone number by newspaper, radio, and television coverage, and
- -to provide professional education in poison treatment to personnel from secondary treatment centers. Educational sessions are scheduled in Billings, Great Falls, and Missoula.

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3.0 Plan For The Future

3.1 Estimate of Service Need

One way to estimate Montana's poison control service requirements is to determine if the State can meet the minimum number of procedures or calls necessary to maintain proficiency. It is estimated that a regional poison information center needs 1,000 calls per month to maintain proficiency. Using the Rocky Mountain Poison Control Center's estimates that 10,000 to 12,000 poison calls can be expected each year for every million people served by the center, a poison information center in Montana could expect only 7,500 to 9,000 calls a year, or 625 to 750 calls a month. In time, if the incidence of poisoning calls remains constant or increases and if Montana's population increases, the state may be able to generate the necessary 1,000 poison calls per month.

Other factors which should be considered in estimating poison control service requirements include availability of personnel, availability of treatment and laboratory facilities, knowledge of the region's capabilities and geographic considerations.

Personnel needed for a regional poison information center and tertiary treatment facilities include a clinical toxicologist. Currently there are only 20 to 30 clinical toxicologists in the United States, and no medical schools are training them, although a program in the specialty may be established soon. The requirements for becoming a clinical toxicologist include certification in internal medicine, pediatrics or some other specialty, plus five years of toxicology-related field work and a clinical toxicology examination. It is unlikely that Montana could attract a clinical toxicologist unless someone in the state decided to become certified as one.6)

Currently, no single facility in Montana could be classified as a tertiary treatment facility, although Missoula, Great Falls, Billings and Helena could probably be classified as secondary treatment facilities.

All of the above information indicates that Montana could not support a regional poison information center or tertiary treatment facilities. However, another factor which should be considered in determining the need for poison information services is knowledge of the area served and the area's medical capabilities. Because Montana encompasses a large geographical area with a sparse population, an intermediary may be needed between out-of-state regional centers and in-state treatment facilities and poison information callers. A subregional center can meet this need.

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1) Meester, Walter D., M.D., Ph.D., "Development of Regional Poison Information and Treatment Center", a paper presented at the National EMS Symposium in Denver, Colorado, March 1, 1977.

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3) Rocky Mountain Poison Control Center, Proposal for Development of a Subregional Poison Center System for Region VIII (Rough Draft - An Update of the 1974 Proposal), February 28, 1977.

4) Rumack, Barry, M.D., Rocky Mountain Poison Control Center, Denver, Colorado.

5) Meester, *Op. Cit*.

6) Johnson, Kit, M.D., phone conversation, April 1, 1977.

3.7

SUMMARY

BURN CARE

Although there are no reliable estimates of the incidence of severe burns in Montana, gross estimates can be obtained by two indirect methods. Nationally, one in every 2,800 persons will be hospitalized for burn injuries each year. It can then be estimated that there were roughly 267 Montana residents hospitalized for burns in 1975. Primary causes of burn injuries vary among age groups, but most burn related deaths were the result of house fires. There have been 154 deaths caused by fire in the years 1971 through 1976.

Currently there are no hospitals in Montana possessing a burn unit/center. Burn programs and teams have been established in St. Vincent Hospital in Billings and Montana Deaconess Medical Hospital in Great Falls.

Based on the estimates presented in this component, it appears no facility can justify the establishment of a burn unit/center supporting more than five specialized beds.

It is recommended that hospitals serving as regional emergency medical centers in Montana develop burn teams and burn programs to assist the attending physician (if requested) in caring for burn patients. By 1985, burn units serving Montana should develop air ambulance capabilities and develop burn education programs for physicians and other personnel involved in treatment of burn victims. Burn education programs on fire prevention should be directed to occupational groups, households and especially school children.

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BURN CARE

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

The citizenry of Montana should have access to the highest level of burn care feasible. To facilitate the development of needed burn care services to the Montana populace, the following Goals, Objectives, and Recommended Review Criteria are suggested:

Goal:

1. Presently, there appears to be no need for establishing burn care centers in Montana.
2. Hospitals serving as regional emergency medical centers in Montana should develop burn teams and burn programs to assist the attending physician (if requested) in caring for burn patients.

Objective:

1. By 1985, burn units/centers serving Montana should develop air ambulance capabilities for the transfer of severely burned patients.
2. By 1985, programs should be implemented to better educate physicians and other personnel involved in burn care in the treatment of burn victims.
3. By 1980, community education programs on fire prevention should be directed to occupational groups, households, and especially school children. Insurance companies, local service organizations, and hospitals could serve as catalysts in promoting fire prevention programs.

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Recommended Review Criteria For Proposed Burn Units

1. Institutions wishing to provide a burn unit/center in Montana need not show that the burn unit will be financially self supporting. The Hospital Survey Committee of Philadelphia estimates that a six bed burn unit typically absorbs an annual operating loss of approximately $50,000. Consequently, institutions undertaking this service must give evidence of financial viability with which to absorb the expected operating losses.
2. A burn unit should provide a minimum of six beds specifically for the treatment of burn patients.
3. A six bed burn unit should expect to treat at least fifty patients annually.
4. A burn unit should have a designated director who is a general or plastic surgeon with one additional year of specialized training in burn therapy or equivalent experience in burn patient care.

Recommended Review Criteria For Proposed Burn Programs

Although the costs of proposed burn programs are likely to be relatively small, new burn programs may be subject to review if considered to constitute a new service.

1. Proposed burn programs developed in concert with intensive care units or combined intensive/cardiac care units should be under the direction of a general or plastic surgeon with experience and interest in burn care. Three months specialized training in burn care is desirable.
2. It is recognized that the criteria prescribed for burn programs by the American Burn Association are desirable but not entirely applicable for proposed burn programs in Montana. Nevertheless, all proposed burn care programs in Montana should strive to meet as many of these criteria as possible.

1.0 Background

Most patients with burns serious enough to require hospitalization require a great deal of special attention by the hospital staff. Because they have lost some of the protective and regulatory functions of their skin, they are particularly susceptible to infections, fluid loss, metabolic disorders and other complications.

Some authorities have advocated that the most efficient and economical way to provide the highest level of care for burn victims in an organized way is to provide a stratified system of burn care facilities.

In contrast, the American Burn Association has hypothesized that burn victims might be treated in four separate settings within a structured multi-level system. 1) They are:

- Burn Units/Centers are hospitals possessing indepth expertise and optimum facilities for burn care. At the present time, units are normally found in hospitals of 500 beds or more and are usually affiliated with medical schools. Typically, a group of four, six or twelve beds, depending on the demand, are maintained in these facilities specifically for the use of severely burned patients. In addition, these hospitals have the capability to deliver all therapy and rehabilitative services required by burn victims. Besides caring for burned patients, personnel in these units usually devote a substantial proportion of their time to teaching, training personnel, and burn research.

- Burn Programs are found in hospitals with special expertise in burn care. Such programs would be capable to treat burns of moderate severity, provide emergency care, serve as a referring center for more severe burns, and provide some rehabilitative care. Burn programs would not typically have beds specifically set aside for burn patients but rather use ICU or ICU/CCU beds for initial hospitalization.

- Hospital Emergency Departments would be used to treat minor burns, provide emergency care for moderate and severe burns and refer patients to more sophisticated facilities.

- Emergency Treatment at the Site of the Accident should be provided by EMT personnel with appropriate training.

The American Burn Association suggests that these four settings can be combined into a burn care system by fostering communication and cooperation among the personnel found in each of these settings. Because burn injury can be readily measured as a percent of body surface area, the severity of the burn can be fairly easily recognized and triage to hospital facilities appropriate to individual needs can be expedited. The American Burn Association has categorized the types of burn injuries and the hospital facilities necessary to treat them. The personnel, equipment, and special services required for the optimal care of the burn care patient are outlined.

One of the keys to such a system is the supporting transportation network. It has been suggested that although most burn patients can be moved successfully in the first 24-48 hours after being injured, the sooner he or she is moved, the easier it is to transport him to a burn facility. In general, the patient can ride comfortably and safely in a surface ambulance capable of providing advance life support on route for as much as 90 minutes. 2) If the estimated transport time is much longer than this, arrangements should be made to air transport the patient.

Presently, there are no reliable estimates of the incidence of severe burns in Montana. Gross estimates can be obtained by two indirect methods. If one assumes that Montana statistics are similar to national figures, then it can be estimated that there were roughly 267 Montana residents who were hospitalized for burns in 1975. (Nationally, it has been estimated that one in every 2,800 persons, or 0.357 per 1,000 population, will be hospitalized for burn injuries each year).3)

On the other hand, mortality statistics can be used to obtain crude estimates of incidence. The number of burn related deaths in the state for 1971 through 1976 is shown in Table 1. For this period, an average of 26 persons died from burns each year in Montana.

One of the problems, however, with using mortality statistics is that they do not differentiate those persons who died at the scene with those who reached the hospital and subsequently succumbed. Up to this time, information on the annual number of persons in Montana who are burned and require hospitalization has not been collected and summarized. Local ambulance services and emergency rooms are currently being encouraged by the State's Emergency Medical Services (EMS) Bureau to complete an encounter form for each person treated. However, estimates based on this data are not yet available.

Nationally, the primary cause of burn injuries varies among age groups. Scald burns are most common in youngsters under three years of age. Between the ages of three and fifteen, the preponderance of major burns are caused by the misuse of fire and matches. In adults, burns are primarily home, automobile and industrial accidents.4) In Montana, 83 percent of the burn related deaths between 1971 and 1975 were among adults fifteen and older; 37 percent of them were persons over 64 years of age. Most burn related deaths were the result of house fires.))

TABLE 1

DEATHS IN MONTANA FROM ACCIDENTS CAUSED BY FIRE AND FLAMES

Year	Number of Deaths	Crude Mortality Rate Per 1,000 Population
1971	26	0.037
1972	31	0.043
1973	26	0.036
1974	17	0.023
1975	32	0.041
1976	22	0.029
TOTAL	154	0.035

Montana Vital Statistics, Montana Department of Health and Environmental Sciences, Bureau of Records and Statistics, Helena, MT

2.0 Description of Current Situation

Currently, there are no hospitals in Montana possessing a burn unit/center. The nearest facilities with these capabilities are located in Seattle, Washington; Salt Lake City, Utah; Denver, Colorado; and Minneapolis, Minnesota. How many Montana residents are treated for burns in these facilities each year is not known at this time. The University of Utah Medical School's Burn Unit has a federal grant to provide air ambulance services to Montana as well as to other mountain states.

Since there are no burn centers in Montana possessing the ability to treat severly burned patients, early consultation should be encouraged between the attending physician and the burn care center. Educational programs on burn care could be directed to all persons involved in burn care to insure quality treatment and proper consultation and referral when necessary.

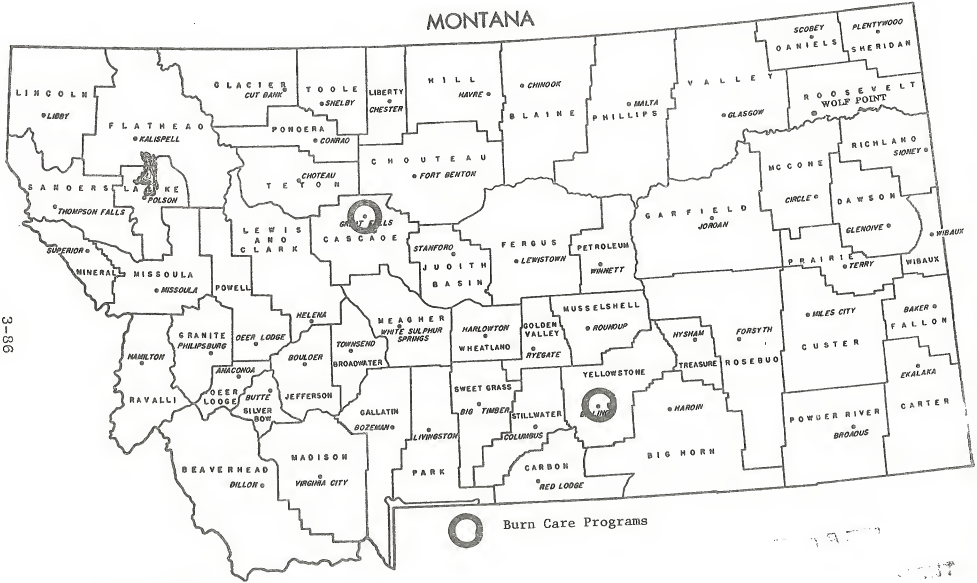
The Emergency Medical Services System (EMSS) Act of 1973 (Public Law 93-154) specifies that EMS programs should address critical patient categories which include the handling of burn victims. To this end, most emergency medical service bureaus have attempted to develop a vertical categorization of facilities which indicate their capabilities to treat patients with severe burns. At the same time, they are encouraging facilities to draft cooperative agreements with burn centers outlining the procedures to be used in the transfer of patients. 6)

Figure 1 shows the location of the two burn programs currently operating in Montana.

St. Vincent Hospital in Billings has established a burn team and a formal burn program which was started in September, 1976. Participation in the program is voluntary; attending physicians may request the burn team's assistance for their burn patients. The physicians on the burn team act as consultants and the attending physician retains overall responsibility. During 1977, approximately 150 burn patients were treated at St. Vincent Hospital, and about 77 burn patients were treated at the hospital during the two years before the establishment of the team.

Montana Deaconess Medical Center in Great Falls has recently developed a burn program around an expanded ICU capability. No statistics are yet available on the number of burned patients to be treated annually by this program.

Community education programs are needed on fire prevention measures. Burn prevention programs could be targeted to occupational groups, school children, and households. Fire departments, along with local service organizations, could serve as catalysts in promoting fire prevention strategies. Since most burn related deaths in Montana were the result of house fires, programs aimed at the prevention of household fires may be efficacious.



No. 1052 — County Outline Map
STATE PUBLISHING COMPANY
Helena

FIGURE 1 - Location of Active Burn Care Programs in Montana (1978)

3.0 Plan For The Future

3.1 Estimate of Service Need

Twenty-five patients per year are required to justify a formal burn program outside of a burn unit/center. In such a program, it has been recommended that at least three (3) ICU or ICU/CCU beds be available for burn patient care, although the low population density and geographical characteristics peculiar to Montana may dictate that this is not feasible. 7)

The projected need for ICU beds in burn programs in Montana for 1976 and 1985 is presented in Table 2. These estimates were calculated using a methodology suggested by Feller and Crane.8) The following assumptions are implicit in this methodology:

1) Approximately one person out of every 2,800 will, each year have a burn accident requiring hospitalization. (Based on Feller's data for 1965-1969 from the U.S. Public Health Service, the Commission on Professional and Hospital Activities, and the National Burn Information Exchange, Ann Arbor, Michigan).

2) The average length of stay for burn patients is 10.9 days. (Based on 1975 statistics from the Commission on Professional and Hospital Activities). 9)

3) About 47 percent of the burn patients are hospitalized in local burn programs; the remaining 53 percent are referred to burn units/centers. (Based on Feller's data).

4) A burn unit should maintain an 80 percent occupancy rate in allocating beds. (Based upon experience of the University of Michigan Burn Center).

Based upon the estimates in Table 2, it appears that no subarea can justify the establishment of a burn unit/center which can support more than five specialized beds. A statewide unit is also infeasible because of the immense area involved. A unit should serve an area within 90 minutes by ambulance and no two subareas, when combined, can satisfy this criterion. If air ambulances were used, the patient can just as easily be transported to burn units/centers outside the state which have already been established.

One important trend with respect to planning future burn care units/centers is that the average length of stay of burn patients appears to be decreasing. In 1969, PAS Hospitals in the Western United States reported an average length of stay of 13.5 days for the hospitalization of burn patients, with approximately 50 percent of the patients staying seven days or less. 10) In 1975, the average length of stay was reduced to 10.9 days with 50 percent of the patients released by the sixth day. 11) These statistics include individuals with minor burns which typically do not require the services of a burn team. The average length of stay for burn patients in Montana appears to be slightly above the average length of stay for burn patients in hospitals across the Western U.S. According to data generated from the burn program at St. Vincent Hospital in Billings, 38 persons were treated for burns for an average length of stay of 12.4 days.

Although the estimated requirements for burn programs in Montana are minimal, it is suggested that hospitals with 24 hour emergency room coverage and an ICU or ICU/CCU capability consider establishing burn teams to be available to the medical staffs wishing to use them. As mentioned previously, St. Vincent Hospital in Billings already has established such a program and Montana Deaconess in Great Falls is in the process of doing so.

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	STATE	NORTH WESTERN	SOUTH WESTERN	NORTH CENTRAL	SOUTH CENTRAL	EASTERN
Estimated 1977 Population	764,410	178,188	182,687	148,173	154,491	100,871
Estimated Seriously Burned Patients	273	64	65	53	55	36
Expected Avg. Daily Census for Burned Patients	25	6	6	5	5	3
Expected Daily Census in Local Burn Programs	12	3	3	2	2	1
# of ICU Beds Required for Burn Pts	15	4	4	3	3	1
Estimated 1985 Population	859,728	206,093	205,798	156,766	180,819	110,252
Estimated Seriously Burned Patients	307	74	73	56	65	39
Expected Avg. Daily Census for Burned Patients	28	7	7	5	6	4
Expected Daily Census in Local Burn Programs	13	3	3	2	3	2
# of ICU Beds Required for Burn Pts	17	4	4	3	3	2

TABLE 2 - Estimated Number of ICU Beds Needed for Burned Patients in Montana in 1977 and 1985.

NOTE: The sum of the subarea requirements may not add to the state requirements due to rounding error.

REVIEW [illegible] COMMENT ONLY

REFERENCES

1) American Burn Association, *Specific Optimal Criteria for Hospital Resources for Care of Patients with Burn Injury*, April, 1976.

2) Artz, Curtis, P., "A Statewide Burn Program" presented at EMS Workshop, Atlanta, Georgia, March 4, 1975.

3) Artz, C.P. and D.R. Yarbrough, III, "Major Body Burn" *JAMA*, Vol. 223, No. 12, p.p. 1355-1357, March 19, 1973.

4) State Department of Health and Environmental Sciences, *Op. Cit*.

5) Ibid.

6) *Emergency Medical Services System Program Guidelines,* U.S. Department of Health, Education and Welfare, Public Health Service, Health Services Administration, Bureau of Medical Services, Division of Emergency Medical Services, DHEW Publication No. (HSA) 75-2013 Revised February, 1975.

7) Nutt, P.C., "Burn Care Standards" *Wisconsin Medical Journal*, Vol. 73, p.p. 37-42, October, 1974.

8) Feller, I. and K. Crane, *Op. Cit*.

9) Commission on Professional and Hospital Activities 1976, *Op. Cit*.

10) Commission on Professional and Hospital Activities, *Length of Stay in PAS Hospitals by Diagnosis, United States, Western Region, 1975*, Ann Arbor, Michigan, September, 1976.

11) Hospital Survey Committee *Specialized Facilities for Burn Treatment*, Philadelphia, December, 1971.

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3.8

SUMMARY

BLOOD BANKING AND PROCESSING

Blood Banking is the collecting, processing, component preparation, distribution and storage of blood needed to support such basic medical services as cancer treatment, emergency trauma and surgery. The state is served by two regional centers, the American Red Cross and United Blood Services, which have contractual agreements with the individual hospitals. There appears to be little duplication of services. Utilization and cost figures are included in the component. There is no shortage of blood doners in Montana. It appears the two blood banking organizations currently serving Montana will continue to be adequate. Montana usage is somewhat less than the national average of 3.5 units of blood for every 100 persons.

The MHSA wishes to maintain the current status of the facilities providing blood to Montanans and would want to continue to support the educational programs for the public and health care professionals.

BLOOD BANKING AND PROCESSING

GOALS, OBJECTIVES AND RECOMMENDED REVIEW CRITERIA

GOAL:

To maintain the current status of providing blood needs in Montana. The two organizations currently servicing Montana should continue to be supported.

OBJECTIVES:

1) Through 1985, no additional blood banking service organizations should be encouraged to service Montana.

   The primary mechanism for accomplishing this will be through the review process, if necessary. However, non-institutional organizations are not subject to review.

2) Through 1985, the public education programs conducted by the two blood banking services should continue to be emphasized.

   Both blood banking services currently serving the State recognize the importance of public education and donor recruitment and will continue to emphasize these programs.

3) By 1980, professional education programs for physicians aimed at the proper use of blood components should be conducted.

   The two blood banking services should work with the Montana Medical Association (MMA) and the active Area Health Learning Centers to sponsor such programs.

4) By 1980, continuing educational programs to train and refresh hospital personnel in compatibility testing matching techniques should be available.

   The two blood banking services should work with the State Medical Techologists Association (MSMT) and the active Area Health Learning Centers to make such programs available.

5) Continuing education programs for professional nurses and nursing students on such subjects as blood, blood component administration and possible reaction ramifications.

   These educational programs should be conducted by the medical staff or professional nurses in the Blood Banking Services serving the State.

1.0 Background

The collecting, processing, component preparation, distribution and storage of blood is needed to support such basic medical services as cancer treatment, emergency trauma and surgery. Organizations providing these services are called blood banks. These can be classified into one or more of the following types:

- Hospital Blood Bank - operated by a hospital primarily to meet its own needs and occasionally to supply the needs of other hospitals in the area.
- Community Blood Bank - non-profit facility at least partially locally organized and controlled to serve the needs of a majority or of all of the hospitals in a community.
- Regional Centers - such as those of the American Red Cross and United Blood Services.
- Other Blood Programs - such as privately owned blood banks operated as profit or non-profit making (not community) enterprises.

At the national level, the Food and Drug Administration (FDA), Bureau of Biologics, is responsible for setting standards for the processing and handling of blood. In addition, because of the federal government's interest in blood services, the American Blood Commission has been formed and a national blood policy has been enunciated to address the problems of availability, quality, cost and accessibility of blood services.

One of the major issues currently being discussed at the national level is whether or not a "replacement fee" should be charged to patients. This fee is charged to a person who receives blood, but has not donated any. In Montana, the replacement fee is not an issue since neither of the organizations providing blood services assess a replacement fee. This policy is used as an incentive to solicit donors, but donor recruitment is not a problem in Montana.

In recent years, there has been an increased emphasis on using blood components rather than whole blood. It has been found that many patients need selected portions of the blood rather than whole blood. However, there has been some resistance from the medical community to substitute components for whole blood. It has been estimated that under usual conditions, about 40 percent of the blood used should be whole blood. In some Montana hospitals, this figure appears to be about 60 percent.

2.0 Description of the Present Situation

In Montana, there are no hospital or community blood banks. The State is served by two regional centers. The first is the American Red Cross Blood Services, Montana Region, located in Great Falls. The second is a non-profit corporation, United Blood Services, which has state offices located in Billings.

At the present time, the two regional blood banking services enter into an agreement with individual hospitals to supply them with blood and blood products. In essence, each hospital has the choice to select the blood bank it wishes to contract with. The Montana counties in which the hospitals are located which have agreements with the two blood banking services are displayed in Figure 1. In addition, the Great Falls Red Cross Center serves McKenzie and Williams Counties in North Dakota, and United Blood Services has contracts with hospitals in Northern Wyoming.

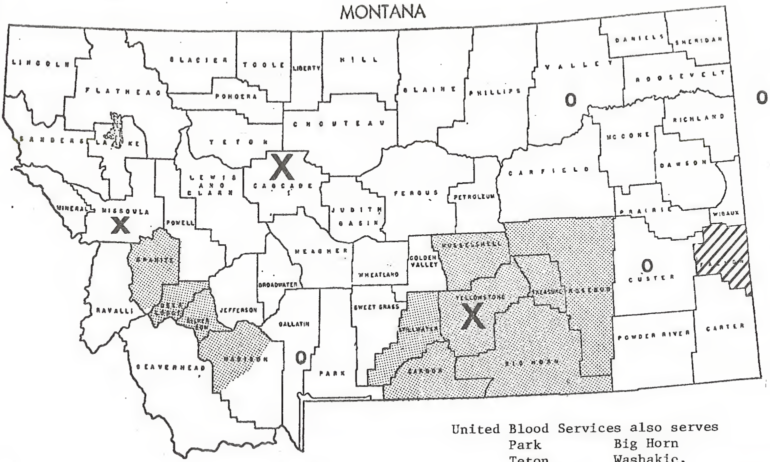
Fallon County Hospital in Baker is one hospital in the State which does not have an agreement with either of the two blood banks. Instead, it has an agreement with Holy Rosary Hospital in Miles City, because its need for blood is minimal, it does not routinely store whole blood. It does keep plasma expanders on hand, and has a policy of immediately transferring patients needing blood to Miles City.

People in Northwestern Montana who are referred to Spokane do have a problem because there is no reciprocity agreement between the Great Falls Red Cross Center and the Spokane Blood Bank. Spokane attaches a non-replacement fee for each unit used and will not accept Red Cross blood as a replacement.

Both Red Cross and United Blood Services have recently moved into new facilities. Red Cross has also established a sub-center in Missoula to draw, fully process, store and distribute all blood products. It is planning to establish frozen blood depots in Miles City, Glasgow, Bozeman and Williston, North Dakota during 1978 and 1979. In this concept, the depots would be able to more quickly provide frozen blood to hospitals in the surrounding area.

United Blood Services has a mobile unit stationed in Butte for local collection and drawings, but all processing is done in Billings.

There appears to be little overlap of services within Montana and the two appear to cooperate reasonably well with one another. The one area of contraversy appears to be in the recruitment of donors. United Blood Services has a philosophy of only recruiting donors in areas where it has hospital agreements.



Red Cross also
serves Williams
and McKensie Count
in North Dakota

United Blood Services also serves
Park
Teton
Lincoln
Big Horn
Washakie,
Hot Springs & Johnson Counties
in Wyoming

FIGURE 1 - Catchment Areas in Montana for the two Blood Bank Organizations serving the State.

X **Regional Headquarters of the Blood Banking Services.**

X **Red Cross Sub Center**

O **Proposed Red Cross Frozen Blood Depots**

☐ **Areas served by Red Cross.**

░ **Areas served by United Blood Services.**

▨ **Area indirectly served by Red Cross (Hospital has agreement with Holy Rosary Hospital, Miles City)**

Red Cross, on the other hand, takes the position that any community having a Red Cross Chapter can have a recruitment drive. Thus, they may solicit donors in communities where they don't have hospital agreements. In practice, however, both services appear to primarily recruit from areas in which they also service the hospitals.

The utilization and cost figures for the two organizations servicing Montana are shown in Table 1. The charge levied for the blood used is for processing and does not include a fee for the blood, itself.

Both Red Cross and United Blood appear to have roughly the same penetration rate in recruiting donors. Although many donors give more than once a year, it appears that between 2.7 and 6.0 percent of the eligible population (i.e. between the ages of 17 and 65) in the Red Cross service area give blood at least once per year. The estimates for United Blood Services' catchment area is between 2.9 and 6.4 percent.

The figures for the percentage of blood used as whole blood appears to be about the same for both organizations. The processing fee for a unit of blood is about the same for the two organizations serving Montana, but is higher than other areas of the United States. The primary reason for this is the transportation costs incurred in collecting and distributing the blood. The percent wasted is substantially higher for Red Cross and may imply the need for a better inventory system.

Most hospitals in Montana maintain blood storage facilities and stock a supply of blood in compliance with Medicare Certification requirements of keeping on hand a "minimal supply of blood for emergency situations". A few of the smaller hospitals, such as Fallon County, have opted to stock only plasma expanders, to have written agreements with larger facilities in the area for blood services backup, and to agree to immediately transfer emergency patients needing blood. This type of arrangement is considered to be in compliance with current Medicare regulations only after approval from the Licensing and Certification Bureau of the Hospitals and Medical Facilities, Division Montana State Department of Health and Environmental Sciences. This decision is made after consultation with DHEW. A small number maintain "walking blood banks" for emergency situations, but these are seldom used and this practice is not condoned by either Red Cross or United Blood Services. It is emphasized that the use of walk-in donors should be restricted to emergency and diaster situations when other resources have been tried and examined.

In emergency situations, the Montana Highway Patrol is called upon to transport blood to hospitals. In 1976, the Highway Patrol made 120 emergency blood runs. On occasion, the Cival Air Patrol and Montana Air National Guard also transport blood.

	Red Cross (Great Falls)	United Blood Services (Montana)
Units Whole Blood Collected	21,132 1)	10,024 2)
Number of Units Used as Whole Blood	11,645 1)	3,254 2)
% Used as Whole Blood	55.1% 1)	32.5% 2)
Cost Per Unit	$ 35 3)	$ 39 4)
% Wastage	30%	6 - 6.5%

1) Based upon data July 1, 1976 through June 30, 1977.

2) Data for 1977

3) An increase to $41.00 per unit is anticipated sometime this year.

4) Cost for a unit of whole blood, the costs for other components vary.

TABLE 1 - Utilization and Cost Figures for the Two Regional Blood Banks Serving Montana.

SOURCE:

1) The American Red Cross Blood Program Operations Report for the Fiscal Year July 1, 1976, through June 30, 1977.

2) United Blood Services, Annual Report 1977 - In Recognition.

3) Personal Communication with Perry Halford, United Blood Services and Samuel Dachs, M.D., Red Cross.

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3.0 Plan for the Future Development of Blood Services

3.1 Overview

There are no general rules about what size population is needed to support a full service blood bank. Obviously, there is some minimum number of units which must be processed to make the operation financially viable. The smallest Red Cross Regional Center collects about 6,000 units annually. Assuming that three percent of the population are donors, then at least 200,000 persons would be required to support such an endeavor. (In contrast, the smallest population served by a Red Cross Regional Center is 400,000 people.) In sparsely populated areas, such as Montana, the transportation costs of collecting and distributing blood require that a much larger population base be served.

For the near future, it appears that the two blood banking organizations currently serving Montana will be adequate. Under the present arrangement, there seems to be little duplication and yet competition remains.

It is beyond the scope of this component and possibly outside the purview of the HSA to analyze the inventory control programs to reduce wastage or to recommend that more small hospitals stop storing blood and blood products. Instead, this component will be limited to assuring there is an adequate supply of blood and blood products available to all Montanans.

3.2 Estimate of Future Service Requirements

As a general rule of thumb, it appears that about 3.5 units of blood are used annually by every 100 persons in the general population.1) Based on statistics from the National Red Cross it appears that the usage of all blood products in Montana is somewhat less than the national average.

Table 2 shows the projected increase in demand for blood in Montana in 1985. It shows that both organizations appear to be currently self sufficient. This is supported by the fact that both blood banking services in Montana send more units of whole blood to other centers and blood banks than they receive.

Table 2 also shows that both blood banking services will have to collect more units of blood in 1985.

The Red Cross nationally collects about 4.1 units of blood from every 100 eligible persons in their catchment areas. The Great Falls Center collects about 3.1 units per eligible 100 persons, and United Blood Services collects about 3.8 units per 100 eligible persons.

	United Blood Services	Red Cross
Estimated 1976 Population Served	253,607	577,580
Number of Units of Blood Needed in 1976	8,876	20,215
Number of Units of Blood Collected	10,024	21,132
Estimated 1985 Population	298,013	648,879
Number of Units of Blood Needed in 1985	10,430	22,710
% Increase in Collections Needed to Meet 1985 Demand	+4.1%	+7.5%

TABLE 2 - Projected Increase in Demand For Blood by the Two Blood Banking Services Currently Serving Montana.

REFERENCES

1) Alsever, J.B. & R.F. Barnes "Use of Blood Transfusions by 177,420 Insured Persons During a 52 month period", Journal American Geriatric Society 15:814-827, 1967.

THESE COMPONENTS ARE BEING SUBMITTED
FOR SUBAREA REVIEW AND DISCUSSION
DURING THE FIRST WEEK OF NOVEMBER
AND WILL BE REVIEWED AT A
STATEWIDE HEARING NOVEMBER 15TH.

AS A RESULT OF THIS HEARING,
THE COMPONENTS WILL BE REVISED
IN THE FINAL VERSION OF THIS PLAN.

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CHAPTER 4

SECONDARY HEALTH SERVICES

Secondary care can be viewed as the middle ground both in terms of medical treatment and in frequency of patient utilization. Secondary care services require a greater population base than primary care services to justify their development since they are utilized less frequently by the general population and usually require substantial capital investment. Even though the services are fewer in number, they will always be found within the health service area.

Individuals requiring this level of care generally have health problems serious or complex enough to require a visit to a specialist and/or a health facility, (for example, a general hospital, nursing home, or community mental health center).

In this chapter, the following secondary health services are addressed:

- General Hospital Acute Inpatient Services,
- Critical Care (ICU/CCU) Beds,
- Acute Care Psychiatric Units,
- Clinical Laboratory Services,
- Diagnostic Imaging,
- Long Term Care Facilities,
- Home Health Care,
- Alcohol Services,
- Drug Services,
- Mental Health Services

Table 1 shows the general categories in which these services can be classified, the settings in which they are typically found and whether or not they are addressed in the National Guidelines.

All of these components can be classified as having a diagnosis and treatment component. That is, they are provided with the intention of identifying and/or alleviating specific diseases and conditions. Long Term Care and Home Health Care also devote much effort to Habilitation, Rehabilitation and Maintenance services. Since the latter three services, Alcohol, Drug and Mental Health Services are organized on a programmatic basis, they cover a broad spectrum of categories. Although most of their resources are spent on diagnosis and treatment, habilitation and rehabilitation and maintenance services, these programs also have a responsibility of carrying out community health promotion, prevention and detection efforts.

With respect to setting, the first three components deal with general (short stay) hospitals. Diagnostic Imaging and Clinical Laboratory Services are commonly found in both the hospital and the ambulatory settings. Of course, Long Term Care is only found in the long stay setting and Home Health Services in the home setting. The three programmatic services, Alcohol, Drug and Mental Health have components in the community, ambulatory, short stay and long stay settings. The primary short stay setting for Mental Health Services is the Acute Psychiatric Unit, which is addressed as a separate component.

At the present time, National Guidelines only address acute hospital services. Nevertheless, it appears that most of the services addressed in this Chapter could be subject to HSA review. The hospital based services, Long Term Care Facilities and Home Health Agencies could be subject to review under either the Certificate of Need Law or Section 1122 of the Social Security Act. Each of the programmatic services, because they receive federal funds will be subject to PUFF (Proposed Use of Federal Funds) review and approval when the Montana HSA becomes fully designated. At the present time, these reviews will be the primary mechanism to achieving the goals and objectives stated in this HSP.

	CATEGORIES OF SERVICE							SETTINGS							
SERVICE	Community Health Promotion	Prevention & Detection	Diagnosis & Treatment	Habilitation & Rehabilitation	Maintenance Services	Support Services	Enabling Services	Community	Home	Mobile	Ambulatory	Short-Stay	Long Stay	Free Standing Support	Addressed by the National Guidelines
General Hospital Acute Inpatient Services			x									x			Yes
Critical Care (ICU/CCU) Beds			x									x			Yes1)
Acute Care Psychiatric Units			x									x			Yes1)
Diagnostic Imaging			x							x		x			
Clinical Laboratory Services			x							x		x			
Long Term Care Facilities			x	x	x								x		
Home Health Care			x	x	x				x						
Alcohol Services	x	x	x	x	x			x		x		x	x		
Drug Services	x	x	x	x	x			x		x		x	x		
Mental Health Services	x	x	x	x	x			x		x			x		

1) The National Guidelines define hospital beds to include ICU/CCU and Psychiatric Beds.

4.1
SUMMARY

GENERAL HOSPITAL ACUTE INPATIENT CARE

This component addresses the size of hospitals and the services they offer. The services range from very generalized medical-surgical procedures to highly specialized and sophisticated services in specially designed units. Depending on population, geographic areas being served, accessibility of physicians and supportive personnel, the range of services will vary.

This component is important because the Health Care Financing Administration (HCFA) estimates hospital costs constitute roughly 40 percent of the health care dollar. During the last four years, costs per patient day in Montana have risen 69 percent while admissions have risen 48 percent. This is comparable to national increases during the same last four years.

With a goal of insuring an adequate number of acute care beds without excessive duplication, and to contain costs without sacrificing the quality of services, the MHSA suggests the allocation of hospital beds be based upon utilization factors rather than national averages.

Table 1 shows that if no more hospital beds were to be added in Montana, then the state would have 3.96 hospital beds/1,000 population. If the plan were to be successfully and completely implemented, there would be 3.63 hospital beds/1,000 population. On the other hand, because of the large number of extremely small hospitals in Montana, it is felt that the national guideline of 80 percent occupancy cannot be met. If no more hospital beds were to be added, the state's hospitals would be expected to have an annual average occupancy rate of 65.7 percent in 1985. If the plan were to be completely implemented, the 1985 annual average occupancy rate would be expected to be about 71.5 percent.

	NUMBER BEDS/1,000 POPULATION	
SUBAREA	NO CHANGES[1)]	PLANNED[1)]
Northwestern	3.5	3.3
North Central	4.7	4.1
Southwestern	3.9	3.4
South Central	3.2	3.6
Eastern	4.6	3.9

TABLE 1 - Estimated Number of Acute Hospital Beds per 1,000 Population in Montana in 1985

[1)] Includes critical care and acute psychiatric beds

The primary mechanism for reducing the hospital bed supply in Montana is to be through the review process when hospitals wish to expand, renovate or modernize their facilities. It has been found in the past hospitals have voluntarily taken unneeded beds out of service in planning facility changes, and will continue to do so in the future. (It appears that most of the unneeded beds in Montana are found in multiple hospital counties and communities.) In addition, hospitals throughout Montana should be encouraged to share services. Rural hospitals should study the feasibility of developing combination hospital/long-term care facilities and/community health centers. A high priority should be placed on efforts to investigate with legislators the possibility of implementing the swing bed concept between long-term and acute care units.

October 11, 1978

GENERAL HOSPITAL ACUTE INPATIENT SERVICES

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOALS:

The goal of these guidelines is to insure an adequate number of acute care hospital beds in Montana in the future without excessive duplication. Where possible, hospitals should strive to contain costs without sacrificing the quality of the services rendered.

OBJECTIVES:

1) The national goal of 4.0 beds per 1,000 population is not appropriate at the local level. It may have some application for planning acute care beds at the regional and state levels. The allocation of hospital beds should be based upon utilization experience. In addition, geographical and distance factors should be heavily considered.

2) Through 1985, the primary method of reducing excess hospital beds in Montana should continue to be through the review process with emphasis on the voluntary reduction of excess hospital beds. The construction or modernization of unnecessary hospital beds should be disapproved. Hospitals having excessive beds (beyond the number needed in reserve) and wishing to remodel or renovate their facilities should reduce the number of beds being maintained.

3) Rural hospitals should be encouraged to develop combination hospital/long term care facilities/community health centers. The possibility of using as swing beds should be investigated with congressional leaders, the state legislators, regulatory and licensing agencies, and third party reimbursement organizations. This effort should receive high priority by the agency during the upcoming year.

4) Hospitals throughout Montana should be encouraged to develop and implement methods of sharing services and forming satellite systems wherever economically effective.

RECOMMENDED REVIEW CRITERIA:

Approximate Costs: Applications for the construction, addition, or modernization of acute care hospital beds should be financially feasible. In concert with this general guideline, the following criteria are recommended:

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- No new general hospitals should be approved unless the applicant can demonstrate that the area in which the proposed hospital will be located is not and cannot be served by existing hospitals.

- Proposed expansion and major modernization plans subject to 1122 or Certificate of Need review must be compatible with the estimated bed need of the service area. These bed need figures, however, are to be used as guidelines and not as standards. When reviewing a proposed application, the committee should consider, look at, and weigh local factors which the estimates cannot and do not take into account.

- In deciding between modernization or replacement the most cost effective solution should be favored.

- Small hospitals (less than 50 beds) should emphasize a type of swing bed concept rather than establishing separate Medical/Surgical, Obstetrical, and Pediatric Units.* Where and when possible, the swing concept should also be extended to long term care beds. Until legislation is passed permitting the use of swing long term beds, small hospitals should consider developing combination facilities (hospitals - long term facilities - community health centers). In addition, physician clinics should be located in close proximity to the small hospital so that essential support services such as laboratory and x-ray need not be duplicated.

In addition, two organizational and operational concepts which might have the potential to reduce hospital costs should be explored and encouraged - satellite systems and shared services. The satellite system refers to an arrangement with a large urban hospital offering a broad range of medical services with several outlying hospitals providing more routine care. Each member hospital has access to all the professional services available to the system as a whole.

Collaborative arrangements and shared services are not as rigid as the satellite system and may still lead to increased efficiency and improved patient care. Examples of some services which might be shared by two or more hospitals are:

- Central purchasing
- Administration
- Automation and computers
- Dietary
- Engineering
- Laundry
- Library
- In-service education

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* Under this swing concept, hospital beds are not allocated to distinct departments. Instead, they are used by the different types of patients as needed.

Although these strategies may not be practical and economical in Montana because of the distances involved, the possibility of establishing such programs should be explored.

Availability: The overall acute inpatient and outpatient service capacity of the hospital system should be equitably distributed and kept in balance with the demonstrated needs of each planning regions' hospitals catchment area, once they are defined by a comprehensive patient origin study.

Accessibility: Hospital services should be distributed to support and promote health care which is accessible to the population being served.

General hospitals and their medical staffs should work with other health professionals toward the development of primary care, home health and other out-of-hospital community services to improve access to care.

Continuity: Hospitals should be closely linked to other types of levels of care through organized referral and patient transfer arrangements to assist in the provision of a comprehensive range of health services to the community. The development of regional satellite systems linking hospitals, nursing homes, home health agencies, rehabilitation facilities, and outpatient facilities throughout Montana will encourage continuity of care.

Quality: The hospitals in Montana should offer the highest quality and most comprehensive and effective service possible at the most reasonable cost to the patient, in accordance with the attending physician's plan of care for the patient.

Effective and consistent quality assurance and peer review programs should be maintained and stressed in every hospital to ensure proper referral of the patient to a more specialized or, in some cases, a lesser level of care.

General Hospital - Bed Supply

(a) Standard

There should be not more than 4.5 non-Federal, short-stay hospital beds per 1,000 persons in the State of Montana. This figure is applicable only to the state average.

(1) Rural Areas: Hospital care should be accessible within a reasonable period of time considering the sparcely populated population in Montana. Travel time varies extensively according to weather conditions. Therefore, as services necessary to provide quality medical care to rural residents are influenced heavily by rural lifestyles, some bed to population ratios of greater than 4.5 per 1,000 is justified.

(b) Discussion

The most reasonable approach to reducing the number of beds in a rural state like Montana, is to continue to rely on voluntary efforts of hospitals and the process of reviewing any hospital expansions on an individual basis. Without large urban centers, bed to population ratios in Montana will not begin to approach suggested national levels. Any attempt to apply national, or average state ratios will result in a decrease in the accessibility, availability and quality of medical care to residents of Montana. A travel time of thirty minutes to a facility has little meaning for many of Montana's residents. Portal to portal distance could vary from as little as a few miles (winter conditions) to as far as twenty miles. It is not appropriate to apply a travel time when these variances are recognized. Actual travel times, then, are usually longer than thirty minutes for Montana's rural residents. It should be emphasized that relatively long travel is a part of a rural life style and Montana is appropriately exempt from bed supply standards.

General Hospital - Occupancy Rate

(a) Standard

In hospitals that average more than 4,000 admissions, an average annual occupancy rate for medically necessary hospital care of at least 65% for the state average of all non-Federal, short-stay hospital beds should be attained.

(1) Seasonal population fluctuations: the influx of people for vacations, rural life styles, and extreme weather conditions require a greater supply of hospital beds than may otherwise be needed.

(2) Lower average annual occupancy rates are required by small hospitals to maintain empty beds to accomodate normal fluctuations of admissions.

(b) Discussion

In rural areas; accessibility, availability, and quality of medical care must be balanced with the cost of services. Provision of adequate care for the people of Montana requires exceptions to the national guidelines both for hospitals with less than 4,000 admissions annually (49 hospitals), and hospitals with more than 4,000 admissions annually (11 hospitals).

Obstetrical Services

(a) Standard

(1) Obstetrical services should be planned on a regional basis with linkages among all obstetrical services with neonatal services.

(2) Hospitals providing care for complicated obstetrical problems (Level IIA in Montana) should have at least 1,500 births annually.

(3) There should be an average annual occupancy rate of at least 75% in each IIA unit with more than 1,500 births per year.

(b) Discussion

Consistent with "Standards of Nursing Care for Secondary Perinatal Center",Mountain States Regional Medical Program (1975) and "Toward Improving the Outcome of Pregnancy",Committee on Perinatal Health (1976), Montana IIA classification is discussed in the "Neonatal Intensive Care Services" component of the Health Systems Plan. The regional planning approach outlined provides (1) expert consultation and referral, (2) basic and continuing education for health professionals and consumers, (3) transport of selected patients to facilities possessing more specialized maternal and neonatal services, and (4) a continuing evaluation of the effectiveness and costs of regionalized programs.

Pediatric Inpatient Services - Number of Beds

(a) Standards

There should be a minimum of 20 beds in a pediatric unit in urbanized (SMSA) areas. An adjustment downward is justified in those urbanized areas where unique sharing of services exist.

(b) Discussion

Consolidation of pediatric care in units of at least 20 beds in an urbanized area will promote the concentration of nursing and support staff with special pediatric knowledge and skills, the increased training of staff, and the provision of special treatment and other ancillary facilities which meet the special needs of children. In those urbanized areas where two pediatric care units exist, an adjustment downward is appropriate where the units involved have voluntarily established procedures to share pediatric services. The standard should not be applied so as to hinder the spirit of cooperation between the facilities nor should it be applied so as to decrease the quality of care at those facilities.

Pediatric Inpatient Services - Occupancy Rates

(a) Standards

Pediatric units in urbanized areas should maintain an average annual occupancy related, for that urbanized area, of 50% (exclusive of neonatal special care units) in that facility.

(b) Discussion

As the pediatric units in urbanized areas of Montana serve as referral centers for rural areas, the occupancy rates are subject to seasonal and "normal" fluctuations. These fluctuations are largely due to the type of services offered at these facilities. Typically, the services offered lend themselves to a shorter length of stay than might be expected in larger facilities. As accessibility, availability, and quality of care must be considered along with cost, a lower average annual occupancy rate is justified for those pediatric units in urbanized areas in Montana.

1.0 Background

As one of their major functions, general hospitals provide 24 hour inpatient services for the diagnosis, short-term care, and treatment of patients. Inpatient services range from very generalized medical-surgical procedures to highly specialized and sophisticated services in specially designed units. The range of services delivered by any one hospital depends on the population and the geographic area being served as well as such factors as transportation access, physician accessibility and specialization, availability of required personnel, utilization of service, and economic feasibility.

The intent of this component is to establish goals and objectives for the future development of inpatient services in Montana. As part of this activity, the local need for short term (patient stays of generally less than 30 days) hospital beds are estimated. These include medical/surgical, obstetrical (maternity), and pediatric beds. Critical (intensive or coronary) care and acute psychiatric beds will be addressed in spearate sections of the plan. Hospital outpatient services will also be addressed separately at some future time.

It is emphasized that because no recent and complete patient origin data exists for Montana hospitals, the analysis of bed need and conclusions based upon it are extremely tenuous. Before any deliberate attempt to reduce excess hospital capacity can be undertaken, population based data defining each hospital catchment area must be available.

Until this patient origin data becomes available, it is assumed that the primary catchment area for each hospital is the county in which it is located. As is shown in Table 1, approximately 70 percent of all admissions in 1977 came, or originated, from the county in which the facility was located. In terms of absolute numbers, some of the larger hospitals serve more out of county patients than some small hospital's total admissions.

The cost of hospitalization within Montana is less than both the national and regional (Mountain State) levels. Nevertheless, the costs of this care are rising at rates similar to the national averages. Table 2 shows the adjusted median expenses per patient days and admissions for 1974, 1975, 1976 and 1977.* In this four year period hospitalization costs in Montana appear to have risen between 69 and 48 percent per patient day and admission, respectively.

The American Hospital Association attributes the rise in these costs to a number of factors.) These include:

* The adjusted cost is a formula used by the American Hospital Association to isolate inpatient costs.

- The number of employees - The number of employees has risen from 178 per 100 patients in 1970 to 339 in 1975 - an increase of 90 percent.

- Salary trends - The average annual salary in community hospitals increased from $5,921 in 1970 to $8,635 in 1975 - an increase of 45.8 percent.

- Non-labor inputs such as insurance, fuel and housekeeping expenses - the Non-labor Input Index compiled by the American Hospital Association indicates a 66.4 percent increase in the prices of products purchased by hospitals between 1970 and 1975.

- New technology (new equipment and services) - No national figures available on the cost increases attributable to this factor.

- Reliance on Debt Financing - Between 1968 and 1975 hospitals increased their usage of debt financing for capital projects from about 33% to nearly 60% of their total project costs.

Combined with these contributing factors to rising hospital costs is the trend that the number of patient days of hospital care is expected to decrease. This is already occurring nationally, but apparently has not hit Montana. (The number of patient days in Montana hospitals increased from 660,000 to 686,000 between 1975 and 1977.

* The adjusted cost is a formula used by the American Hospital Association to isolate inpatient costs.

	Total Admissions	1975 Same County	% Same County	Total Admissions	1976 Same County	% Same County	Total Admissions	1977 Same County	% Same County
ALL HOSPITALS									
Northwestern	32,089	24,486	76.3%	33,358	24,780	74.3%	32,997	23,942	72.6
North Central	26,397	20,007	75.8%	26,742	20,175	75.4%	33,713	22,919	68.0
Southwestern	28,486	23,717	83.3%	26,874	23,528	87.5%	30,588	21,609	70.6
South Central	18,880	13,960	73.9%	25,045	16,465	65.7%	24,974	16,026	64.2
Eastern	15,285	12,022	78.7%	14,997	11,803	78.7%	13,937	11,150	80.0
TOTAL:	121,137	94,192	77.8%	127,016	96,751	76.2%	136,209	95,646	70.2
HOSPITALS - 50 Beds or More									
Northwestern	22,004	15,419	70.1%	23,385	15,748	67.3%	23,421	15,330	65.5
North Central	23,239	17,619	75.8%	23,240	17,333	74.6%	31,365	21,023	67.0
Southwestern	23,094	19,168	83.0%	21,476	19,095	88.9%	25,692	17,707	68.9
South Central	15,157	10,740	70.9%	21,660	13,551	62.6%	22,205	13,663	61.5
Eastern	6,348	4,609	72.6%	5,761	4,164	72.3%	5,689	4,335	76.2
TOTAL:	89,042	67,555	75.9%	95,552	69,891	73.2%	108,372	72,058	66.5
HOSPITALS - Under 50 Beds									
Northwestern	10,085	9,067	89.9%	9,973	9,032	90.6%	9,576	8,612	89.9
North Central	3,158	2,388	75.6%	3,502	2,842	81.2%	2,234	1,896	80.7
Southwestern	5,392	4,549	84.4%	5,398	4,433	82.1%	4,896	3,902	79.7
South Central	3,723	3,220	86.5%	3,385	2,914	86.1%	2,769	1,896	85.3
Eastern	8,937	7,413	82.9%	9,236	7,639	82.7%	8,248	6,815	82.6
TOTAL:	31,295	26,637	85.1%	31,494	26,860	85.3%	27,837	23,588	84.7

TABLE 1 - Percent of Hospital Admissions Arising from the County in which the Facility is located.

SOURCE: Unpublished data from the 1975, 1976 & 1977 Hospital and Related Facilities Annual Report, Department of Health and Environmental Sciences, State of Montana

MEDIAN	Adjusted Cost Per Patient Day				Adjusted Cost Per Admission			
	1974	1975	1976	1977	1974	1975	1976	1977
ALL HOSPITALS:								
Northwestern	117	113	147	155	583	504	592	706
North Central	108	115	131	153	549	607	704	741
Southwestern	101	114	136	154	494	618	602	720
South Central	85	97	111	133	444	525	628	736
Eastern	90	91	107	134	451	466	517	574
STATE:	98	106	124	162	469	520	604	681
HOSPITALS (50 Beds or More)								
Northwestern	121	129	169	187	630	642	813	969
North Central	108	115	134	154	548	607	731	806
Southwestern	103	114	143	162	588	660	813	851
South Central	93	112	137	160	566	697	786	933
Eastern	90	95	114	154	465	522	617	778
STATE:	103	110	138	209	575	630	751	866
HOSPITALS (Under 50 Beds)								
Northwestern	94	100	131	139	414	449	510	500
North Central	118	122	123	153	589	626	650	649
Southwestern	88	107	113	148	385	457	527	623
South Central	78	88	106	117	425	476	514	619
Eastern	90	87	106	128	440	440	491	506
STATE:	90	95	112	137	426	465	526	578

TABLE 2 - Median Adjusted costs per patient day and per admission for Montana Hospitals by subarea and hospital size.

SOURCE:

Furnished by the Montana Hospital Association; based on data submitted to the American Hospital Association in their annual surveys for 1975, 1976, 1977, and 1978.

2.0 Description of the Present Situation

Montana is a rural state with a large land area and small population. Figure 2 shows the location of hospitals in Montana. Geographically, there are 8 counties without a general hospital and 28 with a single hospital. All of these are rural. Four urban counties (Cascade, Lewis & Clark, Silver Bow, and Yellowstone) and three rural counties (Chouteau, Flathead and Madison) have two hospitals each. One urban county (Missoula) and two rural (Lake and Roosevelt) each have three hospitals. The urban hospitals are all located in the same city, whereas the rural hospitals are in different communities. In addition, there are two V.A. Hospitals (Helena and Miles City) and three Indian Health Service Hospitals (Browning, Harlem and Crow Agency) which serve special population groups.

Most communities in the State are served by small hospitals. Forty-one percent (25 of the 61) of the community hospitals are currently licensed for 25 or less beds; seventy percent have 50 or less beds. Consequently, much of the remainder of the description of the present situation in Montana compares the larger hospitals (those over 51 beds) with the small hospitals. It is felt that special consideration must be given to these small hospitals and their problems in the Health Systems Plan/State Health Plan.

As a national guideline, the Federal Government has specified that the overall bed to 1,000 population ratio should not be more than 4.0. It is estimated that the national average is currently 4.3. In contrast, the ratio for Montana is 4.2*. This statistic varies from subarea to subarea with the highest (4.9) being in Eastern Montana - the subarea with the least population density. It does not include the V.A. and Indian Health Service Hospitals. If these Government owned and operated facilities were included the ratio would be 4.7.

Since 1970, the number of licensed hospital beds in Montana has decreased about 10 percent. In 1970, there were 3,556 licensed beds in Montana; by 1977, there were 3,368. It appears that most of the decline in beds in this period is due to small hospitals converting some of their unused beds to long term beds and to reducing their capacity when rebuilding or modernizing.

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* Excluding ICU, CCU and Acute Psychiatric Beds. If these beds were included the ratio for general hospitals in Montana would be 4.6.

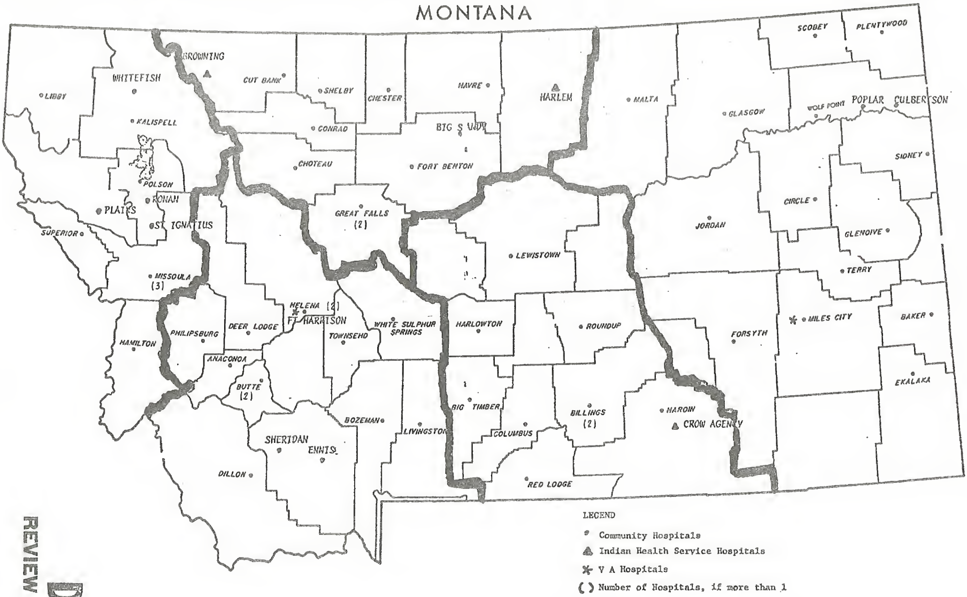

FIGURE 2 - LOCATION OF ACUTE CARE HOSPITALS IN MONTANA

Another guideline established by the Federal Government is that hospitals should operate at an average minimum occupancy rate of 80 percent.

The proposed national guidelines do make allowances for small rural hospitals having less than 4,000 admissions per year, indicating that occupancy rates of less than 80% may be justified.

Table 3 illustrates the change in utilization in Montana hospitals between 1976 and 1977. The percentage increases and decreases is indicated by subarea and state total.

As mentioned previously, the expense involved in hospitalization in Montana has risen substantially in recent years. As shown in Table 2, the median adjusted cost per patient day was $162.00, an increase of 30 percent over the previous year. It costs somewhat less in the smaller hospitals ($132.00, 22% change) compared to the larger ones ($209.00, 51% change).

At the present time, most of the smaller hospitals use a type of swing bed system where possible. The larger hospitals in Montana have set up departmental beds. Most of the small rural hospitals do not set aside medical/surgical, maternity and pediatric beds. Instead, they assign them as needed. For those that have allocated beds for specific use, the maternity and pediatric beds usually experience lower average occupancy rates than do the medical and surgical beds.

The swing concept has not been extended to acute care and long term beds. Medicare and Medicaid reimbursement currently prohibit this. However, in recent years, many of the small Montana hospitals have set up combined, but separate, hospital and long term care facilities. At this time 28 facilities (46%) provide these dual services and have the same administrator.

Several experiments involving the sharing of services are currently being implemented in Montana. For example, group purchasing of selected items is a service currently being offered by the Montana Hospital Association. In addition, many hospitals within the same area participate in consortiums to provide inservice education to their respective staffs. To date, the satellite concept has been attempted in one or two isolated cases within Montana, but has not been successfully implemented.

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	1976	1977	% Change
Northwestern	136,989	139,355	+ 1.7%
North Central	145,213	147,940	+ 1.9%
Southwestern	146,182	145,592	- 0.4%
South Central	134,754	141,440	+ 5.0%
Eastern	89,492	80,604	- 9.9%
TOTAL	652,630	654,931	+ 0.4%

TABLE 3 - Percent Change in Utilization in Montana Hospitals between 1976 & 1977

The proposed national guidelines address obstetrical (Maternity) and Pediatric units separately. The current status of these units in the larger Montana hospitals is presented in Tables 4 and 5. Currently, Missoula and Billings have consolidated OB services in one hospital.

SUBAREA & HOSPITAL	BEDS	NUMBER BIRTHS 1)		ANNUAL AVERAGE OCCUPANCY (%)	
		1976	1977	1976	1977
Northwestern					
Kalispell Regional (Kalispell)	6	653	758	N/A	91.3%
Missoula Community (Missoula)	21	1326	1465	90%	52.0%
North Central					
Montana Deaconess Medical Ctr. (Great Falls)	21	1302	1229	61%	58.9%
Columbus (Great Falls)	7	346	447	51%	N/A
Northern Montana (Havre)	10	408	437	42%	45.5%
Southwestern					
Silver Bow General (Butte)	8	202	248	31%	30.0%
St. James Community (Butte)	11	577	580	43%	55.7%
St. Peters (Helena)	16	682	727	45%	48.2%
Bozeman Deaconess (Bozeman)	14	533	652	32%	38.2%
South Central					
St Vincent (Billings)	25	1900 (est)	1883	58%	80.2%
Eastern					
Holy Rosary Hospital (Miles City)	18	409	353	27%	22.6%

1) Number of bassinet admissions is used as a proxy for births.

National Guidelines for hospitals providing care for complicated obstetrical problems:
1) 1500 births annually
2) 75% average annual occupancy rate

SOURCE: Unpublished data from the 1977 Hospital and Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana.

TABLE 4 - Utilization statistics (1976 & 1977) for obstetrical units in selected Montana Hospitals.

UNTY	HOSPITAL	PATIENT DAYS (1977)	ADJUSTED AVERAGE DAILY CENSUS (1985)	1985 ESTIMATED BED NEED (HOSPITAL)
Glacier	Memorial	3,517	10.6	18
	PHS Indian Hosp 1) (Browning)	6,091	18.4	28
Toole	Toole County	2,219	6.0	12
Pondera	Pondera County	9,323	27.3	40
Teton	Teton Memorial	3,371	11.9	20
Cascade	Montana Deaconess	45,883	133.3	160
	Columbus	49,186 2)	142.9	171
Chouteau	Chouteau Co. Dist.	2,442	6.9	13
	Big Sandy	1,348	3.9	9
Hill & Blaine	Northern Montana	12,131	34.8	49
	Fort Belknap PHS 1)	2,236	5.9	12
Liberty	LIberty County	1,985	5.8	11
TOTAL		139,732	407.7	543

1) Government owned and operated facility
2) Did not report 1977 ICU/CCU data. 1976 ICU/CCU patient days have been subtracted from total 1977 statistics.

TABLE 7 - Estimated Bed Need in 1985 in North Central Montana (by Hospitals)

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COUNTY	HOSPITAL	PATIENT DAYS (1977)	ADJUSTED AVERAGE DAILY CENSUS (1985)	1985 ESTIMATED BED NEED (HOSPITAL)
Lincoln	St. John's Lutheran	4,074	11.3	19
Flathead	Kalispell Regional	24,305	82.6	104
	North Valley	8,463	28.8	41
Sanders	Clark Fork Valley	4,010	13.2	22
Lake	St. Joseph's	6,510	20.3	31
	St. Luke Comm.	3,475	10.8	19
	Mission Valley	1,427 1)	8.2	15
Mineral	Mineral County	1,229	4.2	9
Ravalli	Marcus Daly Mem.	9,896	30.9	44
Missoula	Missoula General	8,399	27.4	40
	Missoula Community	23,295 2)	75.9	92 2)
	St. Patrick	39,818	129.8	156
TOTAL		134,909	443.4	592

1) Data reflects 199 days of operation during 1977
2) ICU & CCU patient days included; 4 beds are dedicated to an ICU/CCU Unit.

TABLE 6 - Estimated Bed Need in 1985 in Northwestern Montana (by Hospitals)

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3.0 Plan for Future Placement of General Hospital Acute Inpatient Services

Tables 6 through 10 indicate the estimated number of acute care hospital beds needed in 1985 in each of the service areas (counties) and HSA subareas. Except where noted; ICU, CCU, and Acute Psychiatric Beds and utilization were excluded in making these estimates. In these tables, the bed need is estimated for each hospital by the following formula:

$$\text{Bed Need} = \text{ADC} + 2.33\sqrt{\text{ADC}}$$

Where ADC = the annual average daily census (the estimated number of patients in the hospital on any given day).

The average daily census is based on the number of patient days reported in 1976 and is adjusted for expected population growth between 1976 and 1985.

$$\text{Adjusted ADC} = \frac{\text{Patient Days}}{365} \times \frac{\text{Population (1985)}}{\text{Population (1977)}}$$

Census estimates were used for 1977 population figures. Montana Department of Community Affairs estimates (medium series) were used to provide an estimate for the 1985 population.

The bed need model being used above is based upon the probability that an unoccupied bed will be available 99% of the time when needed. It assumes that the daily census is distributed by a Poisson Distribution and that fluctuations occur around the average.

It is emphasized that these bed need estimates are extremely tenuous. For larger hospitals, the catchment areas extend beyond their local counties. They often serve as referral centers for the smaller hospitals in their immediate area. It is hoped that a periodic patient origin study will assist in developing estimates for these catchment areas. For small hospitals which primarily serve their immediate community, the acquisition or loss of a staff physician will have a tremendous impact of their utilization statistics, nevertheless these estimates are helpful in determining where additional beds are needed and where substantial excess capacity may exist.

At this time, because Montana has no population based data system, it is felt that the national goal of 4.0 beds per 1,000 population should not be directly applied to Montana. It cannot be used for local guidelines, except to identify potential areas of substantial excess capacity.

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SUBAREA AND HOSPITAL	NUMBER BEDS 1976	NUMBER BEDS 1977	ANNUAL AVERAGE OCCUPANCY (%) 1976	ANNUAL AVERAGE OCCUPANCY (%) 1977
Northwestern				
St. Patrick (Msla) - unit	30	30	31%	45.2%
Missoula Comm. (Msla) - beds	10	10	34%	65.0% (est)
Kalispell Regional (Kalispell) - unit	N/A	8	N/A	56.8%
North Central				
Montana Dea. (Gr. Falls) -unit	18	20	53%	50.4%
Columbus (Gr. Falls) -unit	29	29	42%	39.8%
Northern Montana (Havre) -unit	12	12	78%	60.1%
Southwestern				
Shodair (Helena) - unit	35	35	40%	35.6%
Silver Bow (Butte) - unit	10	14	27%	21.0%
St. James (Butte) - unit	23	23	41%	42.2%
Bozeman Dea. (Bozeman) - unit	7	7	51%	47.6%
South Central				
St. Vincent (Billings) - unit	28	28	54%	79.2%
Billings Dea. (Billings) - unit	32	10	41%	35.2%
Eastern				
Holy Rosary (Miles City) - unit	11	11	22%	16.1%

National Guidelines for Pediatric Units
1) at least 20 beds/unit. 65% occu.

TABLE 5 - Utilization statistics (1976 & 1977) for pediatric units in selected Montana hospitals

SOURCE: Unpublished data from the 1976 Hospital and Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana.

COUNTY	HOSPITAL	PATIENT DAYS (1977)	ADJUSTED AVERAGE DAILY CENSUS (1985)	1985 ESTIMATED BED NEED (HOSPITAL)
Beaverhead	Barrett Memorial	3,979	12.1	20
Madison	Ruby Valley	1,791	5.1	10
	Madison Valley	1,818	5.2	11
Gallatin	Bozeman Deaconess	22,139	71.6	91
Lewis & Clark & Jefferson	St. Peter's	33,142	111.4	136
	Shodair Crippled Children's	4,352	14.5	23
	V.A. Center (Fort Harrison) 1)	50,403	157.6 3)	187
Broadwater	Broadwater	2,043	6.2	12
Meagher	Mountain View	1,007 2)	2.8	7
Silver Bow	St. James Comm.	38,543	114.2	139
	Silver Bow Gen.	20,994	62.4	81
Deer Lodge	Comm. Hospital of Anaconda	8,316	24.2	36
Powell	Powell Co. Mem.	5,150	16.8	26
Granite	Granite Co. Mem.	813	2.3	6
Park	Livingston Mem.	7,029	22.3	33
TOTAL		201,519	628.7	818

1) Government owned and run facility
2) Includes ICU/CCU Patient Days
3) Expected change in the entire state's population was used to adjust the average daily census for the V.A. Hospital

TABLE 8 - Estimated Bed Need in 1985 in Southwestern Montana (by Hospitals)

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COUNTY	HOSPITAL	PATIENT DAYS (1977)	ADJUSTED AVERAGE DAILY CENSUS (1985)	1985 ESTIMATED BED NEED (HOSPITAL)
Fergus, Petroleum & Judith Basin	Central Montana	7,544	21.5	32
Wheatland & Golden Valley	Wheatland Mem.	2,032	4.5	10
Musselshell	Roundup Mem. 1)	2,114 1)	6.3	12
Sweet Grass	Sweet Grass Comm.	1,314	3.2	7
Stillwater	Stillwater Comm.	3,431 2)	11.0	19
Carbon	Carbon Co. Mem.	4,063	11.9	20
Big Horn	Big Horn Co.	2,654	8.4	15
	PHS Indian Hosp. (Crow Agency) 3)	7,047	22.2	33
Yellowstone	Billings Deaconess	42,662	148.4	177
	St. Vincent	61,522	214.1	248
TOTAL		134,418	451.5	573

1) 1976 Data; Closed during 1977; Certificate of Need issued for re-opening
2) Data reflects 273 days of operation during 1977
3) Government owned and operated facility

TABLE 9 - Estimated Bed Need in 1985 in South Central Montana (by Hospitals)

UNTY	HOSPITAL	PATIENT DAYS (1977)	ADJUSTED AVERAGE DAILY CENSUS (1985)	1985 ESTIMATED BED NEED (HOSPITAL)
Valley	Frances Mahon Dea.	7,282	24.3	36
Daniels	Daniels Memorial	1,560	4.2	9
Sheridan	Sheridan Memorial	4,878	12.6	21
Roosevelt	Roosevelt Memorial	2,826	8.3	15
	Trinity	7,526	22.1	33
	Poplar Community	3,112	9.1	16
McCone	McCone County	3,269	8.7	16
Garfield	Garfield County	315	0.9	3
Richland	Community Mem.	11,615	37.4	52
Dawson & Wibaux	Glendive Comm.	9,903	31.2	44
Rosebud & Treasure	Rosebud Comm.	2,648	8.1	15
Custer & Powder River	Holy Rosary	16,692	49.8	66
	V.A. Hospital (Miles City) 1)	21,691	67.7 2)	87
Prairie	Prairie Comm.	783	2.4	6
Phillips	Malta Hospital	7,614	21.9	33
Fallon	Fallon Memorial	1,053	3.2	7
Carter	Dahl Memorial	550	1.6	5
TOTAL		103,317	313.5	464

1) Government owned and operated facility
2) Expected change in the entire state's population was used to adjust the average daily census for the V.A. Hospital.

TABLE 10 - Estimated Bed Need in 1985 in Eastern Montana (by Hospitals)

Tables 11 through 15 show the difference between the number of acute hospital beds currently licensed and the estimated number needed. Special care (ICU, CCU and Acute Psychiatric) beds are subtracted.

Tables 11 through 15 are tabulated by service area (county). The bed need estimates for all hospitals in the service area (shown in Tables 6 through 10) have been added to obtain an overall bed need estimate. Government owned and operated facilities are not included in these latter tables.

It appears that three areas of the State (Flathead, Lewis & Clark, and Yellowstone Counties) will need to consider building additional hospital beds in the next five years to meet the demand which will be placed on them by 1985.

On the other hand, most of the other areas appear to have substantial excess capacity. Those with 20 or more surplus beds include:

Lake County
Missoula County
Cascade County
Hill and Blaine Counties
Silver Bow County
Deer Lodge County
Custer and Powder River Counties

Most of these are also areas with more than one hospital. Although it would appear that alternative uses for some of these facilities could be explored and possibly implemented without reducing the accessibility of hospital services, no specific recommendations are being made to close any facility. A crude analysis of the potential savings to be realized by closing selected small hospitals indicates that the savings would be approximately equal to the closed hospital's annual payroll. This analysis assumes that adjacent hospitals would serve the patients currently served by the closed facility and does not take into account such negative factors as paying off the debt retirement and other fixed overhead costs of the closed facility, local economic impact (multiplier effect of lost wages from the local economy) and the potential that the remaining hospitals will have to increase personnel to handle the increased load.

It does appear, however, that consolidation of some services (e.g. Obstetrical and Pediatric) is feasible and would yield some savings in communities where they are currently duplicated.

In those communities with only one hospital and still having excess beds, it is suggested that a long range policy of reducing hospital capacity through the review process be continued. In recent years, many smaller hospitals have opted to reduce their bed size as they begin replacement and modernization programs. In addition, with other services (e.g. alcoholism, rehabilitation and psychiatric) obtaining more stable reimbursement, some of these facilities should consider developing these services with existing resources.

COUNTY	BEDS CURRENTLY LICENSED	SPECIAL CARE BEDS	NET BED COMPLEMENT	1985 ESTIMATED BED NEED (COUNTY)	1985 DEFICIT (SURPLUS)
Lincoln	34	2	32	19	(13)
Flathead	135	4 1)	131	145	14
Sanders	20	2	18	22	4
Lake	95	4	91	65	(26)
Mineral	10	2	8	9	1
Ravalli	48	2	46	44	(2)
Missoula	389	35 2)	354 2)	288	(66)
TOTAL	731	51	680	592	(88)

1) Kalispell Regional Hospital has 7 unlicensed ICU/CCU Beds

2) Statistics from Missoula Community Hospital include ICU/CCU patient days, thus their 4 ICU/CCU Beds are included in the Net Bed Complement.

TABLE 11 - Comparison between the 1985 estimated need for general hospital beds and current number of beds in Northwestern Montana (by county)

In those communities with only one hospital and still having excess beds, it is suggested that a long range policy of reducing hospital capacity through the review process be continued. In recent years, many smaller hospitals have opted to reduce their bed size as they begin replacement and modernization programs. In addition, with other services (e.g. alcoholism, rehabilitation and psychiatric) obtaining more stable reimbursement, some of these facilities should consider developing these services with existing resources.

COUNTY	BEDS CURRENTLY LICENSED	SPECIAL CARE BEDS	NET BED COMPLEMENT	1985 ESTIMATED BED NEED (COUNTY)	1985 DEFICIT (SURPLUS)
Lincoln	34	2	32	19	(13)
Flathead	135	4[1)]	131	145	14
Sanders	20	2	18	22	4
Lake	95	4	91	65	(26)
Mineral	10	2	8	9	1
Ravalli	48	2	46	44	(2)
Missoula	389	35[2)]	354[2)]	288	(66)
TOTAL	731	51	680	592	(88)

1) Kalispell Regional Hospital has 7 unlicensed ICU/CCU Beds

2) Statistics from Missoula Community Hospital include ICU/CCU patient days, thus their 4 ICU/CCU Beds are included in the Net Bed Complement.

TABLE 11 - Comparison between the 1985 estimated need for general hospital beds and current number of beds in Northwestern Montana (by county)

COUNTY	BEDS CURRENTLY LICENSED	SPECIAL CARE BEDS	NET BED COMPLEMENT	1985 ESTIMATED BED NEED (COUNTY)	1985 DEFICIT (SURPLUS)
Glacier[1)]	20	2	18	18	0
Toole	30	2	28	12	(16)
Pondera	50	2	48	40	(8)
Teton	20	0	20	20	0
Cascade[2)]	473	59	414	331	(83)
Chouteau	26	0	26	22	(4)
Hill & Blaine[1)]	120	7	113	61	(52)
Liberty	11	0	11	11	0
TOTAL	750	72	678	515	(163)

1) Does not include the Indian Health Service Hospital run by the Public Health Service

2) Columbus Hospital is currently licensed for 213 beds; they will be moving to a new 191 Bed Facility shortly. The 191 - 14 ICU Beds = 171 general hospital beds was used

TABLE 12 - Comparison between the 1985 estimated need for General Hospital Beds and current number of beds in North Central Montana (by county)

COUNTY	BEDS CURRENTLY LICENSED	SPECIAL CARE BEDS	NET BED COMPLEMENT	1985 ESTIMATED BED NEED (COUNTY)	1985 DEFICIT (SURPLUS)
Beaverhead	31	2	29	20	(9)
Madison	31	3	28	21	(7)
Gallatin	104	0 1)	104	91	(13)
Lewis & Clark 2) Jefferson	148	9	139	159	20 6)
Broadwater	21	1	20	12	(8)
Meagher	8	0	8	7	(1)
Silver Bow	320	14 3)	306	220	(86)
Deer Lodge	60	2	58	36	(22)
Powell	35	2	33	26	(7)
Granite	10	0 4)	10	6	(4)
Park	54	4	50	33	(17)
TOTAL	822	37	785	631	(154)

1) Bozeman Deaconess has 5 ICU/CCU beds but do not separate its ICU/CCU statistics
2) Does not include the VA Center at Fort Harrison
3) St. James Community intends to expand its ICU/CCU capacity from 2 to 12 beds
4) Granite County has 1 ICU/CCU bed but does not separate its ICU/CCU statistics
5) St. Peters is currently operating under a temporary license which gives them 30 beds more than their 114 bed permanent license for a total of 144 beds.
6) From an institutional perspective, St. Peters needs 39 beds and Shodair Crippled Children's has 8 extra beds.

TABLE 13 - Comparison between the 1985 estimated need for General Hospital Beds and the current number of beds in Southwestern Montana (by county)

COUNTY	BEDS CURRENTLY LICENSED	SPECIAL CARE BEDS	NET BED COMPLEMENT	1985 ESTIMATED BED NEED (COUNTY)	1985 DEFICIT (SURPLUS)
Fergus, Petroleum & Judith Basin	47	5	42	32	(10)
Wheatland & Golden Valley	25	0	25	10	(15)
Musselshell	17[1]	0	17[1]	12	(5)
Sweet Grass	17	1	16	7	(9)
Stillwater	27	0[2]	27	19	(8)
Carbon	28	2	26	20	(6)
Big Horn	16[3]	0	16	15	(1)
Yellowstone	412	36[4]	376	425	49
TOTAL	589	44	545	540	(5)

1) Currently closed
2) Stillwater Community Hospital has 2 ICU/CCU beds but does not separate its ICU/CCU statistics
3) Does not include the IHS Hospital at Crow Agency
4) St. Vincent's has 24 unlicensed ICU/CCU beds which are not included

TABLE 14 - Comparison between the 1985 estimated need for General Hospital Beds and the current number of beds in South Central Montana (by county)

COUNTY	BEDS CURRENTLY LICENSED	SPECIAL CARE BEDS	NET BED COMPLEMENT	1985 ESTIMATED BED NEED (COUNTY)	1985 DEFICIT (SURPLUS)
Valley	54 1)	4	50	36	(14)
Daniels	11	0	11	9	(2)
Sheridan	21 2)	1	20	21	(1)
Roosevelt	78 3)	0	78	64	(14)
McCone	20	0	20	16	(4)
Garfield	8	1	7	3	(4)
Richland	55	4	51	52	1
Dawson & Wibaux	46	3	43	44	1
Rosebud & Treasure	26	2	24	15	(9)
Custer & Powder River	120 4)	7	113	66	(47)
Prairie	8	1	7	6	(1)
Phillips	30	1	29	33	4
Fallon	19	3	16	7	(9)
Carter	16	0	16	5	(11)
TOTAL	512	27	485	377	(108)

1) Frances Mahon Deaconess hospital is preparing to move into a new facility having 54 beds
2) Sheridan Memorial is planning to move into a new, 21 bed facility

3) Roosevelt Memorial is planning to move into a new 14 bed facility
4) Does not i[illegible]ude the VA Center in Miles City

TABLE 15 - Comparison between the 1985 estimated need for General Hospital Beds and the current number

4.2

SUMMARY

ICU/CCU BEDS

The term critical care refers to both intensive care and coronary care. As a specifically designated area of a hospital, a critical care unit provides highly specialized services to the seriously ill or injured patient.

The total number of ICU beds is not known because they are not separately licensed, but 46 of Montana's 61 community hospitals are currently maintaining such a unit. Presently, many small hospitals use the "swing" bed concept using beds for medical/surgical purposes as the need arises. Average occupancy of beds designated as ICU beds in 1977 was approximately 44 percent. The average length of stay in ICU/CCU units for three of the five subareas appears to be below that predicted nationally (five versus seven days).

The component details, by subarea, the number of designated critical care beds, the percent of occupancy and the average length of stay for each hospital.

Three interrelated problems are encountered in delivering critical care services in Montana. These are: geographical distance, financing, and utilization. The component refers to a system used in Oklahoma for patients in outlying communities called Remote Cardiac Monitoring which might be an alternative for study for Montana.

In estimating the needs of Montana, an equation using average daily census is utilized. If current utilization rates continue, it is anticipated by 1985 that most of the areas served will have a surplus or deficit of only one or two beds. It is recommended two hospitals, Kalispell Regional and St. Patrick Hospital in Missoula, might investigate expanding their ICU/CCU capability by three beds.

Primarily, this component is stressing availability of ICU services to all Montanans with precedence over cost containment considerations. Ongoing education for hospital personnel providing critical care services and inventories of critical care beds are recommended. Licensing of the units and reimbursement of step-down care should be priorities.

September 15, 1978

CRITICAL CARE
(INTENSIVE CARE UNIT AND CORONARY CARE UNIT)
BEDS

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

The primary goal of these guidelines is to insure that through 1985, critical care services are available to Montanans when needed. Because of the vast distance involved, it is felt that the availability of ICU/CCU services should take precedence over cost containment considerations. That is, even though maintaining an ICU/CCU capability may not be cost effective, every hospital is obligated to provide this service to the best of its ability.

OBJECTIVES:

1. By 1985, the feasibility of setting up a system of remote monitoring between outlying communities and a referral hospital should be explored in order to maintain the present compliment of ICU/CCU beds in small community hospitals.

2. By 1980, a program of continuing education for the hospital staff members providing ICU/CCU service should be ongoing. Backup staff members must also be trained so that gaps in service are prevented.

3. By 1980, a complete inventory of critical care beds in all hospitals should be conducted by the State Agency. This inventory is to include state and federal facilities.

4. By 1980, the State Agency should prepare a tentative set of regulations for the licensing of intensive care and coronary care units. This draft set of regulations should be forwarded to the Governing Board of the Montana Health Systems Agency for their comments.

5. Legislation should be supported to implement provisions for the reimbursement of step down care after it has been determined by the attending physician that continuous monitoring of the ICU/CCU patient is no longer necessary.

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RECOMMENDED REVIEW CRITERIA FOR CRITICAL CARE BEDS (ICU/CCU):

1. Intensive care units/coronary care units should be readily accessible to the emergency room in hospitals of fifty or more licensed beds.

2. Intensive care beds/coronary care beds in hospitals of less than fifty licensed beds should be located in close proximity to the nurses station.

3. Arrangements should be made for direct transmission of electrocardiograms (ECG's) to consultants in other facilities if no local cardiologists are available for the care of coronary care patients.

4. At a minimum, one registered professional nurse for every three critical care patients should be provided. Patient needs may dictate that one registered professional nurse is needed for every critical care patient. Specially oriented licensed practical nurses, working under close professional nursing supervision to perform assigned bedside duties, may be used to reduce this ratio.

5. All nurses staffing critical care units should at least annually take appropriate continuing education and refresher courses in order to maintain their proficiency.

6. A medical director or a committee of the medical staff of a critical care unit should be appointed to assume responsibility for medical supervision and educational responsibilities, as well as patient treatment responsibilities for emergent situations.

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1.0 Service Description

Critical care is a generic term used to include both intensive care and coronary care units. These units are specifically designated areas of the hospital where seriously ill or injured patients receive highly specialized services. In these units, specially trained nursing and support personnel are concentrated with sophisticated electronic monitoring equipment to provide continuous patient coverage and observation. Thus, if the patient has problems and/or complications, corrective measures and life saving techniques can be quickly initiated. Patients should not be discharged from these units but rather transferred to beds offering less sophisticated levels of care.

To be considered as an intensive care unit or coronary care unit, certain criteria must be fulfilled. For instance, certain minimal equipment and supplies must be available in a coronary care unit, such as oxygen, an oscilloscope, a heart rate meter equipped with an alarm system, an external pacemaker, and a crash cart equipped with a defibrillator, resuscitators, respirator, and emergency drugs. Also required is an electrocardiograph direct readout or tape recorder.

Larger hospitals typically designate critical care beds as distinct and separate units. Floor space, staff, and equipment are all allocated especially for these beds. Intensive care units and coronary care units may exist separately within the larger hospital. The primary difference between intensive care units and coronary care units is in the type of patients they are designed to treat. Coronary care units are maintained specifically for the treatment of patients with definite or suspected acute myocardial infarctions, commonly known as heart attacks. On the other hand, intensive care units are designed to treat patients suffering from shock, hemorrhage, respiratory ailments, coma, convulsions, fluid or electrolyte problems, circulation and complicated drainage problems, and other patients needing intensive levels of care. Intensive care units in the larger hospitals are also used to monitor post-surgical patients who have not reacted sufficiently to be safely cared for in a regular medical/surgical bed or who are prone to develop complications requiring close nursing observation and attention. An example of the latter are patients recovering from open heart or brain surgery.

In contrast, smaller hospitals typically use medical/surgical beds located adjacent to the nursing station as the need for ICU/CCU beds arises. These might be more appropriately called "monitored beds". Staff are assigned as the situation dictates and the equipment used to monitor the beds may be portable. In smaller hospitals, critical care units are primarily used as an adjunct to the emergency medical system. Although these units serve as an important component in post-operative care within the larger hospitals, these guidelines will emphasize the emergency need for ICU/CCU beds due to the preponderance of small hospitals in Montana.

The purpose of these guidelines is to provide criteria to govern the future expansion of these units in Montana. Because they are hospital based, these units will be examined hospital-by-hospital.

2.0 Current Status of Critical Care (ICU/CCU) Beds in Montana

In Montana, most hospitals have decided to establish ICU/CCU units in one form or another. In 1967, eight hospitals had ICU or CCU beds;1) by 1977, this number grew to 46. In addition, most of the hospitals having units in 1967 had increased their critical care bed capacity since that time.

Intensive care and coronary care beds are presently not separately licensed in Montana. They are considered to be the same as recovery room beds. Because not all ICU/CCU beds are licensed, the total number of these beds is not known. If licensure for these beds was adopted, the future growth of these units might be reduced but the extent of the licensure impact is questionable.

The hospitals in Montana with intensive care units, coronary care units or combined critical care beds are shown in Tables 1 through 5. Forty-six (46) of Montana's 61 community hsopitals are currently maintaining this capability.

It should be emphasized that although hospitals have designated ICU or CCU beds, many are used for both purposes. It appears, however, that most were initially set up to care for cardiac and emergency care patients. It should be further emphasized that many of the smaller hospitals use these beds as "swing" beds. Under this "swing" bed concept, ICU/CCU beds may be used for the medical/surgical patients as the need for these beds arises.

Because these beds are often used interchangably, the utilization statistics in Tables 1 through 5 reflect the usage of both units together.

The average annual occupancy of all critical care units in Montana during 1977 appears to be approximately 44 percent. The larger hospitals are able to maintain higher occupancy rates than the smaller hospitals. Average occupancy rates during 1977 for critical care beds are depicted in Tables 1 through 5 for hospitals licensed for 50 or more beds and hospitals with less than 50 licensed beds. Except for Eastern Montana, the rates did not vary significantly among the subareas. The large hospitals in Eastern Montana had occupancy rates considerably below the larger hospitals in the other subareas.

The average length of stay in ICU/CCU units for three of the five subareas appears to be below that predicted nationally. Planning documents for these units suggest that the average length of stay for ICU/CCU units should be five to seven days.

HOSPITAL	NUMBER OF BEDS (1977)	1977 OCCUPANCY (%)	1977 AVERAGE LENGTH OF STAY
St. John's Lutheran Hosp. (Libby)	2	17.8	2.0
Kalispell Regional Hosp. (Kalispell)*	8	53.6	N/A
North Valley Hosp. (Whitefish)	4	33.0	2.9
Clark Fork Valley Hosp. (Plains)	2	34.4	3.1
St. Joseph Hosp. (Polson)	2	55.5	N/A
St. Luke Hosp. (Ronan)	0	----	---
Mission Valley Hosp. (St. Ignatius)	2	2.1	2.1
Mineral Co. Hosp. (Superior)	2	14.0	3.6
Missoula Community Hosp. (Missoula)*	4	----	---
Missoula General Hosp. (Missoula)*	5	17.1	3.8
St. Patrick Hosp. (Missoula)*	13	65.3	8.5
Marcus Daly Mem. Hosp. (Hamilton)	2	40.1	2.2
TOTAL	46		
AVERAGE		37.6	4.7
- 50 or more beds*		51.9	7.6
- less than 50 beds		24.9	2.6

SOURCE: Based upon unpublished data reported in the 1977 Hospital & Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana.

TABLE 1 - Number of ICU and CCU Beds in Northwestern Montana Hospitals and Related Statistics

REVIEW AND COMMENT ONLY

HOSPITAL	NUMBER OF BEDS (1977)	1977 OCCUPANCY (%)	1977 AVERAGE LENGTH OF STAY
[illegible]cier Co. Mem. Hosp. (Cut Bank)	2	----	---
Toole Co. Hosp. (Shelby)	2	12.6	2.3
Pondera Co. Hosp. (Conrad)*	2	49.2	3.8
Teton Mem. Hosp. (Chouteau)	0	----	---
Columbus Hospital (Great Falls)*	14	N/A	N/A
Mt. Dea. Medical Center (Great Falls)*	41	55.4	8.0
Chouteau Co. Hosp. (Ft. Benton)	0	----	---
Big Sandy Medical Ctr. (Big Sandy)	0	----	---
Northern Mt. Hosp. (Havre)*	7	42.7	3.7
Liberty Co. Hosp. (Chester)	0	----	---
TOTAL	68		
AVERAGE		51.8	6.7
- 50 or more beds*		53.4	6.9
- less than 50 beds		12.6	2.3

SOURCE: Based upon unpublished data reported in the 1977 Hospital & Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana.

TABLE 2 - Number of ICU and CCU Beds in North Central Montana Hospitals and Related Statistics

HOSPITAL	NUMBER OF BEDS (1977)	1977 OCCUPANCY (%)	1977 AVERAGE LENGTH OF STAY
Barrett Hospital (Dillon)	2	----	2.2
Ruby Valley Hosp. (Sheridan)	2	2.7	1.6
Madison Valley Hosp. (Ennis)	1	14.2	2.5
Bozeman Deaconess Hosp. (Bozeman)*	4	46.6	N/A
St. Peter's Hosp. (Helena)*	9	47.8	2.9
Shodair Crippled Childrens Hosp. (Helena)	0	----	---
Broadwater Hosp. (Townsend)	1	18.1	5.0
Mt. View Mem. Hosp. (White Sulphur Sp)	1	----	---
Granite Co. Mem. Hosp. (Philipsburg)	0	0	0
Powell Co. Mem. Hosp. (Deer Lodge)	2	30.5	3.1
St. James Comm. Hosp. (Butte)*	4 1)	80.7	4.2
Silver Bow General Hosp. (Butte)*	2	----	N/A
Comm. Hosp. of Anaconda (Anaconda)*	2	27.1	N/A
Livingston Mem. Hosp. (Livingston)*	4	23.8	5.2
TOTAL	34	----	---
AVERAGE		41.2	3.6
- 50 or more beds*		49.9	3.7
- less than 50 beds		16.5	2.9

1) Plans for the new facility calls for 12 critical beds

SOURCE: Based upon unpublished data reported in the 1977 Hospital & Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana

TABLE 3 - Number of ICU and CCU Beds in Southwestern Montana Hospitals and Related Statistics

HOSPITAL	NUMBER OF BEDS 1977	1977 OCCUPANCY (%)	1977 AVERAGE LENGTH OF STAY
Central Mt. Hosp. (Lewistown)*	5	30.4	5.9
Wheatland Mem. Hosp (Harlowtown)	0		
Roundup Memorial Hospital (Roundup)	0		
Stillwater Comm. Hosp. (Columbus)	2	10.8	N/A
Sweetgrass Comm. Hosp. (Big Timber)	1	1.6	3.0
Carbon Co. Mem. Hosp. (Red Lodge)	2	28.9	3.7
Big Horn Co. Mem. Hosp. (Hardin)	0		
Billings Deaconess Hosp. (Billings)*	21	54.2	6.9
St. Vincent Hosp. (Billings)*	24 1)	76.5 2)	N/A
TOTAL	55	----	---
AVERAGE		53.2	5.8
- 50 or more beds*		58.1	6.1
- Less than 50 beds		16.2	3.3

---

1) St. Vincent Hospital had 7 ICU and 5 CCU beds in 1976, new facility will have 24 beds.

2) Based on the 12 beds in service in 1977

SOURCE: Based upon unpublished data reported in the 1977 Hospital & Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana

TABLE 4 - Number of ICU and CCU Beds in South Central Hospitals and Related Statistics.

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HOSPITALS	NUMBER OF BEDS 1977	1977 OCCUPANCY (%)	1977 AVERAGE LENGTH OF STAY
Malta Hospital (Malta)	1	67.7	4.3
Francis Mahon Deaconess Hosp. (Glasgow)*	6	18.7	2.0
Daniels Mem. Hosp. (Scobey)	0		
Sheridan Mem. Hosp. (Plentywood)	1	N/A	N/A
Roosevelt Mem. Hosp. (Culbertson)	0		
Trinity Hosp. (Wolf Point)	0		
Poplar Comm. Hosp. (Poplar)	1	N/A	N/A
Garfield Co. Hosp. (Jordan)	1	2.5	4.5
McCone Co. Hosp. (Circle)	0		
Community Mem. Hosp. (Sidney)*	4	27.8	2.5
Glendive Comm. Hosp. (Glendive)	4	20.3	3.0
Rosebud Comm. Hosp. (Forsyth)	2	11.0	2.2
Fallon Mem. Hosp. (Baker)	3	3.6	2.8
Dahl Mem. Hosp. (Ekalaka)	0		
Holy Rosary Hosp. (Miles City)*	7	20.7	2.2
Prairie Comm. Hosp. (Terry)	1	N/A	N/A
TOTAL	31	----	---
AVERAGE		19.7	2.4
- 50 or more beds*		21.7	2.2
- Less than 50 beds		16.7	3.2

SOURCE: Based upon unpublished data reported in the 1977 Hospital & Related Facilities Annual Report, Department of Health & Environmental Sciences, State of Montana

TABLE 5 - Number of ICU and CCU Beds in Eastern Montana Hospitals and Related Statistics

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The Northwestern, Southwestern, and Eastern subareas reported average length of stays of 4.7 days, 3.6 days, and 2.4 days respectively. The North Central subarea hospitals experienced average length of stays of around 6.7 days during 1977. Similarly, the average length of stay in ICU/CCU units for the South Central subarea was approximately 5.8 days. Except for the Eastern subarea, hospitals with less than fifty licensed beds experienced lower average length of stays in ICU/CCU units than hospitals with fifty or more licensed beds.

3.0 Plan For The Future

3.1 Overview

Three interrelated problems are encountered in delivering critical care services in Montana. They are geography and distance, financing, and utilization. The vast distances between hospitals in Montana demand that the small hospitals be capable of treating critically ill patients. In doing so they are likely to provide this service at a loss and must be subsidized by the other hospital services and county taxes. Finally, even if the service is provided and financing is available, the low utilization rates are detrimental to staff proficiency. Most hospitals have to implement staff flotation policies to provide sufficient ICU/CCU coverage, and, at the same time, minimize personnel costs. To maintain their skills, nurses must take a number of continuing education programs and yet the small hospital does not have flexibility to grant extensive staff time for such programs.

Provisions should be made for step-down care after it has been decided that continuous monitoring of the patient is no longer necessary. It has been suggested, for example, that after their condition has stabilized, heart attack victims might be transferred to a progressive care area where ECG monitoring (telemetry) can be continued but the level of visual surveillance and attendance is reduced. In the absence of such a monitoring capability, the patient should be admitted to a general medical floor.

In Oklahoma a system which has been shown to be efficient, economical, and highly successful as a means of providing intensive coronary care for patients in outlying communities is Remote Cardiac Monitoring. Remote Cardiac Monitoring provides continuous transmission of a patient's electrocardiogram from an outlying hospital to a central monitoring station for continuous observation and interpretation by coronary care unit personnel. In addition, the system provides a readily available communication network to insure prompt notification of the staff in the outlying hospital and appropriate nursing intervention. In order to become a viable system, the active participation of physicians, nurses, and administrative personnel is needed.

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3.2 Estimate of Need

The estimated number of ICU/CCU beds needed in 1985 in each of the Montana hospitals currently maintaining this capability is shown in Tables 6 through 10.

The model used to compute these estimates is based upon the following equation:

$$\text{Bed Need} = \text{ADC} + 2.33\sqrt{\text{ADC}}$$

where ADC is the expected average daily census in the unit.

The first factor, ADC, represents the average daily patient load in the unit. The second factor, $2.33\sqrt{\text{ADC}}$, is used to account for day to day fluctuations and to allow for sufficient bed surplus to assure reasonable accessibility. The multiplier 2.33 is used to estimate the probability that an empty bed will be available 99% of the time. That is, the number of beds provided should be sufficient for patient needs 361 days out of any given year; more patients than available beds can be expected approximately 4 days out of the year.

In making projections for 1985, the average daily census for 1977 was adjusted to take into account future population growth.

Two problems, however, are encountered in using this model and the estimates derived from it. First, the need for these beds in hospitals not already having this capability in one form or another is not taken into account.

The second problem is that in the larger hospitals some services, in themselves, will create a demand for more ICU/CCU beds. This is especially true for those institutions performing open heart surgery and neurosurgery. If an open heart surgery team is operating at optimal levels (150 operations a year), it alone will require at least three ICU beds for its patients. It is assumed that a neurosurgery team will require a similar number of beds. Thus, if a hospital proposes to deliver either of these two services, then it should consider the effect on its ICU/CCU unit(s).

Returning to Tables 6 through 10, it appears that most hospitals have built critical care beds commensurate with community need and will not need to expand their capabilities in this area in the next five years. By 1985, most of the areas served will have a surplus or deficit of one or two beds if current utilization rates persist.

The tables do indicate that two hospitals, Kalispell Regional Hospital and St. Patrick Hospital in Missoula, might investigate expanding their ICU/CCU capability in the near future. Both appear to need at least three additional critical care beds by 1985.

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HOSPITAL	AVERAGE DAILY CENSUS (1977)	AVERAGE DAILY CENSUS 1985 1)	BEDS NEEDED 1985	BEDS CURRENTLY AVAILABLE	DEFICIT (SURPLUS)
St. John's Lutheran Hosp. (Libby)	.36	.36	2	2	0
Kalispell Reg. Hosp. (Kalispell)	4.29	5.33	11	8	3
North Valley Hosp. (Whitefish)	1.32	1.64	5	4	1
Clark Fork Valley Hosp. (Plains)	.69	.83	3	2	1
St. Joseph Hosp. (Polson)	1.19	1.36	4	2	2
St. Luke Hosp. (Ronan)			0	0	0
Mission Valley Hosp. (St. Ignatius)	.04	.05	1	2	(1)
Mineral Co. Hosp. (Superior)	.28	.35	2	2	0
Missoula Comm. Hosp. (Missoula)	2.04 2)	2.43	6	4	2
Missoula Gen. Hosp. (Missoula)	.85	1.01	3	5	(2)
St. Patrick Hosp. (Missoula)	8.49	10.13	18	13	5
Marcus Daly Mem. Hosp. (Hamilton)	.80	.91	3	2	1
TOTAL			58	46	12

1) Adjusted for expected population change
2) Based on 1975 statistics; 1976 and 1977 data not available.

	1977	1985 No Additional Beds	1985 Estimated Need
Critical care Bed to 1,000 population ratios	.26	.22	.28

TABLE 6 - Comparison between the estimated number of ICU/CCU beds needed in Northwestern Montana Hospitals in 1985 and number currently available.

HOSPITAL	AVERAGE DAILY CENSUS (1977)	AVERAGE DAILY CENSUS (1985) 1)	BEDS NEEDED 1985	BEDS CURRENTLY AVAILABLE	DEFICIT (SURPLUS)
Glacier Co. Mem. Hosp. (Cut Bank)	.24 2)	.26	2	2	0
Toole Co. Hosp. (Shelby)	.25	.24	1	2	(1)
Pondera Co. Hosp. (Conrad)	.98	1.04	3	2	1
Teton Mem. Hosp. (Choteau)		0	0	0	0
Columbus Hosp. (Great Falls)	7.88 3)	8.35	15	14	1
Mt. Dea. Medical Ctr. (Gr. Falls)	22.73	24.00	35	41	(6)
Chouteau Co. Hospital (Ft. Benton)				0	0
Big Sandy Medical Ctr. (Big Sandy)				0	0
Northern Mt. Hosp. (Havre)	2.99	3.14	7	7	0
Liberty Co. Hosp. (Chester)	.56	.60	2	0	2
TOTAL			65	68	(3)

1) Adjusted for expected population change
2) Based on 1976 statistics, 1977 data not available
3) Based on 1976 Statistics, 1977 data not available

	1977	1985 No Additional Beds	1985 Estimated Need
Critical care Bed to 1,000 population ratio	.48	.45	.43

TABLE 7 - Comparison between the estimated number of ICU/CCU beds needed in North Central Montana hospitals in 1985 and the number currently available.

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HOSPITAL	AVERAGE DAILY CENSUS (1977)	AVERAGE DAILY CENSUS (1985) 1)	BEDS NEEDED 1985	BEDS CURRENTLY AVAILABLE	DEFICIT (SURPLUS)
Barrett Hospital (Dillon)	.38	.38	2	2	0
Ruby Valley Hosp. (Sheridan)	.05	.05	1	2	(1)
Madison Valley Hosp. (Ennis)	.14	.14	1	1	0
Bozeman Deaconess Hosp. (Bozeman)	1.87	2.20	6	4	2
St. Peter's Hosp. (Helena)	4.30	5.31	11	9	2
Shodair Crippled Childrens Hosp. (Helena)	0	0	0	0	0
Broadwater Hosp. (Townsend)	.18	.20	1	1	0
Mt. View Mem. Hosp. (White Sulphur)	.07 2)	.07	1	1	0
Granite Co. Mem. Hosp. (Philipsburg)			0	0	0
Powell Co. Mem. Hosp. (Deer Lodge)	.61	.72	3	2	1
St. James Comm. Hosp. (Butte)	3.23	3.49	8	12 4)	(4)
Silver Bow Gen. Hosp. (Butte)	.65 3)	.70	3	2	1
Comm. Hosp. of Anaconda (Anaconda)	.54	.57	2	2	0
Livingston Mem. Hosp. (Livingston)	.95	1.10	4	4	0
TOTAL			43	42	1

1) Adjusted for expected population change
2) & 3) Based on 1975 statistics; 1976 and 1977 data is not available
4) 4 beds currently available; approved plan for new hospital calls for 12 bed unit.

	1977	1985 No Additional Beds	1985 Estimated Need
Critical care Bed to 1,000 population ratio	.23	.20	.21

TABLE 8 - Comparison between the estimated number of ICU/CCU beds needed in Southwestern Montana hospitals in 1985 and the number currently available

HOSPITAL	AVERAGE DAILY CENSUS (1977)	AVERAGE DAILY CENSUS (1985) 1)	BEDS NEEDED 1985	BEDS CURRENTLY AVAILABLE	DEFICIT (SURPLUS)
Central Mt. Hosp. (Lewistown)	1.52	1.59	5	5	0
Wheatland Mem. Hosp. (Harlowtown)					
Roundup Mem. Hosp. (Roundup)					
Stillwater Comm. Hosp. (Columbus)	.22	.26	1	2	(1)
Sweetgrass Comm. Hosp. (Big Timber)	.02	.02	1	1	0
Carbon Co. Mem. Hosp. (Red Lodge)	.58	.62	2	2	0
Big Horn Co. Mem. Hosp. (Hardin)					
Billings Deaconess Hosp. (Billings)	11.38	14.41	23	21	2
St. Vincent's Hosp. (Billings)	9.18	11.62	20	24	(4)
TOTAL			52	55	(3)

1) Adjusted for expected population change

	1977	1985 No Additional Beds	1985 Estimated Need
Critical care Bed to 1,000 population ratio	0.32	0.28	.30

TABLE 9 - Comparison between the estimated number of ICU/CCU beds needed in South Central Montana hospitals in 1985 and the number currently available.

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HOSPITAL	AVERAGE DAILY CENSUS (1977)	AVERAGE DAILY CENSUS (1985) 1)	BEDS NEEDED 1985	BEDS CURRENTLY AVAILABLE	DEFICIT (SURPLUS)
Malta Hospital (Malta)	.68	.71	3	1	2
Frances Mahon Dea. Hosp. (Glasgow)	1.12	1.36	4	6	(2)
Daniels Mem. Hosp. (Scobey)					
Sheridan Mem. Hosp. (Plentywood)	.19 2)	.18	1	1	0
Roosevelt Mem. Hosp. (Culbertson)					
Trinity Hosp. (Wolf Point)					
Poplar Comm. Hosp. (Poplar)			1	1	0
Garfield Co. Hosp. (Jordan)	.02	.02	0	1	(1)
McCone Co. Hosp. (Circle)					
Community Mem. Hosp. (Sidney)	1.11	1.30	4	4	0
Glendive Comm. Hosp. (Glendive)	.81	.95	3	4	(1)
Rosebud Comm. Hosp. (Forsyth)	.22	.25	1	2	(1)
Fallon Mem. Hosp. (Baker)	.11	.12	1	3	(2)
Dahl Mem. Hosp. (Ekalaka)					
Holy Rosary Hosp. (Miles City)	1.45	1.63	5	7	(2)
Prairie Comm. Hosp. (Terry)	.02 3)	.02	1	1	0
TOTAL			24	31	(7)

1) Adjusted for expected population change
2) Based on 1976 statistics, 1977 data not available
3) Based on 1976 statistics, 1977 data not available

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	1977	1985 No Additional Beds	1985 Estimated Need
Critical care Bed to 1,000 population ratio	.31	.28	.22

TABLE 10 - Comparison between the number of ICU/CCU beds needed in Eastern Montana hospitals in 1985 and the number currently available

REFERENCES

1) Montana Division, Mountain States Regional Medical Program, Montana Health Profile Western Interstate Commission for Higher Education, July, 1969.

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4.3

SUMMARY

ACUTE CARE PSYCHIATRIC UNITS

In recent years the trend toward deinstitutionalization has increased the responsibility of the local communities to provide services. This plan component is limited to establishing guidelines for the future development of regional psychiatric units in selected hospitals to service those persons needing medically related care in the community.

These units are staffed by psychiatric nurses and other mental health specialists under the direction of a psychiatrist. Characteristically, patients admitted to these psychiatric units exhibit behavior related to depression and psychosis.

The development of these units is heavily dependent on the recruitment of psychiatrists to the state. The possible use of National Health Service Corps to recruit the needed number of psychiatrists will be addressed in another component.

It appears Kalispell, Helena and Bozeman are economically feasible and justify the development of acute psychiatric care units. It is recognized that a need exists in Eastern Montana for such a unit, but its financial feasibility must be carefully studied before a recommendation to develop a unit can be made.

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ACUTE CARE PSYCHIATRIC UNITS

GOALS, OBJECTIVES AND RECOMMENDED REVIEW CRITERIA

GOAL:

To foster the rational development of a number of regional, acute care psychiatric units in Montana hospitals to provide short term psychiatric care to all Montanans. As a planning goal, bed need in this plan is based on a use rate of 61.2 patient days per 1,000 population.

OBJECTIVES:

1. By 1980, to investigate the feasibility of establishing a short term psychiatric unit in Eastern Montana and to explore alternative means of providing these services should a unit not be practical. Geographical and population obstacles warrant special consideration for Eastern Montana, but this unit should be viable and capable of self support.

2. By 1985, to establish short term psychiatric units in Kalispell, Helena and Bozeman if they can be shown to be financially feasible and to serve a sufficient population to justify at least 15 beds, without jeopardizing existing services in nearby cities.

3. By 1980, to support legislation which would require that all health insurance policies sold in Montana include coverage of acute psychiatric services.

4. By 1980, to support legislation to emphasize the county's responsibility for paying for services provided to persons admitted to these units for commitment on an emergency basis.

5. By 1980, emphasize the importance of linkages, coordination and cooperation between acute psychiatric units and local community mental health services. Cooperation between local inpatient and outpatient programs is vital to ensure complete coverage.

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RECOMMENDED REVIEW CRITERIA FOR ACUTE CARE PSYCHIATRIC UNITS:

(1) Each hospital desiring to establish such a unit should have at least one psychiatrist on its staff.

(2) Each unit should be able to be self-supporting within three years after initiation of services.

(3) Each unit should contain at least 15 beds.

(4) Each unit should be staffed with psychiatric nurse specialists and should be able to comply with the Standards for Psychiatric Facilities,1) published by the American Psychiatric Association.

(5) Units should not be duplicated in a single community.

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1.0 Background

The mental health delivery system in the United States has undergone rapid and major revision in recent years. The trend has been toward the provision of services to patients in their own home communities. Underlying this trend is the principle that removing a person from "normal home and communities makes resolution of problems more difficult than maintenance of the ill person in the home and community."2)

The utilization of local services has been steadily increasing as state and psychiatric hospitals have decreased in size, or, in some areas, closed completely. Since 1963, with the passage of the Community Mental Health Centers Act of 1963, the resident populations of these hospitals have decreased nationwide by 45 percent.3)

In this transition, it has been necessary for the large community hospitals to develop special units to care for acutely ill psychiatric patients for short periods. Rarely do these stays exceed ten or eleven days.

Consequently, this plan component will be limited to establishing guidelines for the future development of psychiatric units in selected hospitals. Although most hospitals have the capability to treat psychiatric patients when necessary, few hospitals have the staffing to maintain distinct units. These hospitals, in turn, serve as a referral source for the other hospitals in the area.

Although this component does not address the services delivered by local community mental health centers, they are another community resource which have responsibilities in this area. The importance of good linkages between the acute psychiatric units is stressed so that a full range of services can be provided to the patient.

The characteristics which set psychiatric units apart from other units in the hospital are:

1) The patients receive services from and under the direction of a psychiatrist.

2) The unit is staffed by psychiatric nurses and other mental health specialists. The nurse staffing ratio in a psychiatric unit is usually higher than in other units in the hospital (7.5 hours/ patient compared to 5.5 hours/patient in other services).

3) The length of stay in these units is usually longer than other units in the hospital, but is considerably shorter than in psychiatric facilities such as the state mental hospital at Warm Springs.

4) Special admission forms are used which enables the hospital to keep the patient up to five days for examination.

The majority of patients admitted to psychiatric units in Montana appear to be:3)

- Very depressed/often suicidal.
- Acutely psychotic.
- Have some form of severe organic brain syndrome.
- Have severe personality and behavioral disorders.

It appears that a significant proportion of the patients admitted to these units are adolescents. Many appear to be awaiting residential treatment programs. If these were to be developed, pressure would be taken off the acute psychiatric units.

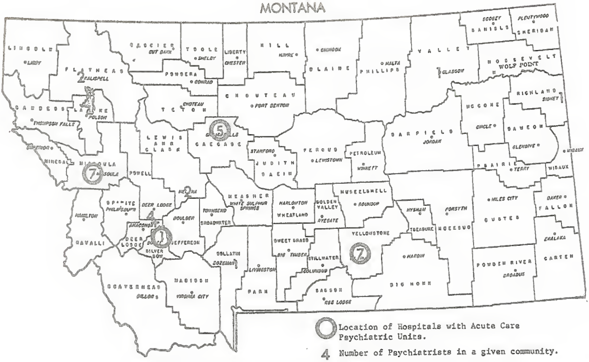
2.0 Description of the Current Situation

There are presently four hospitals in Montana that have psychiatric units, are staffed by professional personnel, and utilize therapeutic treatment modalities. These are Billings Deaconess Hospital, Montana Deaconess Hospital in Great Falls, St. Patrick Hospital in Missoula, and Silver Bow General Hospital in Butte. The location of these facilities and their general catchment areas are shown in Figure 1. Other hospitals in the state have security rooms for psychiatric patients or will use a general bed or room for such patients.

The number of beds, total admissions, length of stay, and occupancy rates of the four hospitals with psychiatric units are indicated in Table 1. In Montana, the average length of stay for psychiatric unit patients is 9.0 days as compared to the national average of 11 days.4)

One of the problems in developing a plan for psychiatric units in Montana is that there is a lack of psychiatrists outside of the metropolitan areas of the state. Figure 1 shows the location of practicing psychiatrists currently in the state. It is emphasized that psychiatric units cannot function without a psychiatrist on staff. The possible use of National Health Service Corps (NHSC) to assist in recruiting psychiatrists to shortage areas will be addressed in the future in a separate part of the Health Systems Plan.

A second problem in Montana is that the provision of psychiatric services is often quite costly to the hospital due to the fact that mental health care insurance is not often comprehensive, and that a large percentage of mental patients are not covered by third party payors. Thus, decisions about treatment and hospital stay have to be made without knowledge of whether the patient will be accepted for insurance to cover the hospital bill.



○ Location of Hospitals with Acute Care Psychiatric Units.

4 Number of Psychiatrists in a given community.

+ Location of Warm Springs State Hospital

FIGURE 1 - Location of Acute Care Units & Psychiatrists in Montana

Hospital	Number Beds	Total Admissions	Total Inpatient Days	Average Length of Stay (Days)	Occupancy Rate Percent
Montana Deaconess Medical Center Great Falls	28	846	5,998	7.1	58.7
St. Patrick Hospital Missoula	15	487	3,358	6.9	61.3
Billings Deaconess Hospital Billings	21	486	5,346	11.0	69.7
Silver Bow General Hospital$^{1)}$ Butte	18	206$^{1)}$	3,556$^{1)}$	11.3$^{1)}$	54.1$^{1)}$
TOTAL	82	2,025	18,258	9.0	61.0

$^{1)}$For the period July 1, 1977 to June 30, 1978

TABLE 1 - Admission and Utilization Data for Acute Care Psychiatric Units in Montana

Source: Unpublished data from the 1977 Hospital and Related Facilities Annual Report, Department of Health and Environmental Sciences, State of Montana.

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Another related problem is that under statute, the counties are responsible for paying for patients brought in by local law enforcement officials on an emergency basis for probable commitment procedure. However, it is not specified when this responsibility takes over, and some hospitals, on occasion, have had to absorb the costs of admitting and keeping these patients.

All four of the Montana hospitals offering acute psychiatric services have indicated that they charge off as charity and/or bad debts a significant percentage of unpaid psychiatric services.

3.0 Plan for the Future Development of Acute Care Psychiatric Units

3.1 Overview

In 1975, the Governor's Advisory Council on Mental Health recommended that a selected number of communities consider establishing acute psychiatric units. The intent of this recommendation was a recognition of the fact that a minimum number of geographically dispersed units were needed to provide complete coverage of the state. The HSA agrees with this concept with the following qualifications:

All four of these hospitals have indicated that they charge off as charity and/or bad debts a significant percentage of unpaid psychiatric services.

3.0 Plan for the Future Development of Acute Care Psychiatric Units

3.1 Overview

In 1975, the Governor's Advisory Council on Mental Health recommended that a selected number of communities consider establishing acute psychiatric units. The intent of this recommendation was a recognition of the fact that a minimum number of geographically dispersed units were needed to provide complete coverage of the state. The HSA task force on acute care psychiatric units agrees with this concept with the following qualifications:

1) Each unit must be under the direction of a psychiatrist.

2) Units must be large enough to be self-supporting.

3) Services should not be duplicated in a community.

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The reasoning behind the first criterion is that these units are medical facilities and patients can only be admitted by a physician. Consequently, it was felt that these units should be developed only after the hospital has placed a psychiatrist on its medical staff. (A psychiatrist can practice without a unit, treating patients on an outpatient basis and using general hospital beds as needed; but a unit cannot function without a psychiatrist.)

Thus, the development of these units are heavily dependent on the recruitment of psychiatrists to the state. The possible use of National Health Service Corps (NHSC) psychiatrists will be addressed in another component. To be eligible for a NHSC psychiatrist, a community must serve an area of at least 30,000 residents. Various planning studies have indicated that a population base of at least 10,000 persons is needed to support a psychiatrist's practice. Some studies, especially those dealing with HMO's, estimate that a population base of 50,000 persons is needed to support a psychiatrist.5)

Based upon the past experience of existing units in Montana, units of less than 15 beds can not support themselves. With this number of beds, the unit must experience an annual occupancy rate of 80% and serve a population of at least 150,000 persons to break even.

The third criterion is self-explanatory. Up to this time, these units have not been duplicated in a community in Montana. It appears that economies of scale can be realized in these units (the larger the service, the lower the unit cost), and should more than one hospital offer this service, then the average cost would be substantially higher.

3.2 Estimate of Service Requirements

To accurately determine the appropriate number of psychiatric beds to be located in Montana hospitals, the total mental health system must be addressed. The Community Mental Health Centers in the state must complete their patient origin studies for

Consequently, only crude estimates of bed need can be developed at this time. It is assumed that individual hospitals wishing to develop one of these units will be able to more precisely estimate the local need for this service.

Another factor which cannot be addressed at this time is the impact of group homes and other less restricted living arrangements for the mentally ill. On one hand, the availability of these services locally should take a lot of pressure off of the need for acute care psychiatric units so that they can be used only for the most seriously ill patients. On the other hand, the mere presence of these group homes may indicate the need for acute backup services which are furnished by psychiatric units.

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Table 2 presents the estimated bed need for acute care psychiatric units in a number of selected hospitals across Montana. Each of these hospitals have approximately 100 beds and serve as regional referral centers. It is assumed that the primary catchment area is the county in which these hospitals are located, although it is recognized that these units would serve as regional centers. To compensate for this restrictive assumption, the bed need estimates are extremely liberal, based on a 99 percent chance that an unoccupied bed will be available when needed. In essence, this procedure assumes that a 15 unit would have an annual occupancy rate of 55 percent--a utilization level which may not be self supporting.

On the basis of these estimates, it appears that Kalispell, Helena, and Bozeman might justify the development of acute care psychiatric units in their hospitals. Havre and Miles City probably cannot justify such units. However, because of the distances to be traveled in Eastern Montana, such a service might be justified. It probably could not however, be self-supporting because of the sparse population to be served.

With the exception of Billings, each of the cities currently having these units appear to be adequately served. With the rapid growth expected in the Billings area, expansion of the current services may be justified.

SUBAREA, CITY & COUNTY	1985 COUNTY POPULATION	PROJECTED AVERAGE DAILY CENSUS 1)	ESTIMATED BED NEED 2)	NUMBER OF BEDS CURRENTLY LICENSED	DEFICIT (SURPLUS)
NORTHWESTERN					
Missoula (Missoula)	78,171	13.1	22	15	7
Kalispell (Flathead)	56,402	9.5	17	--	17
NORTH CENTRAL					
Great Falls (Cascade)	88,274	14.8	24	28	(4)
Havre (Hill)	19,641	3.2	7	--	7
SOUTHWESTERN					
Butte (Silver Bow)	44,457	7.5	14	18	(4)
Helena (Lewis & Clark)	44,931	7.5	14	--	14
Bozeman (Gallatin)	44,058	7.4	14	—	14
SOUTH CENTRAL					
Billings (Yellowstone)	126,106	21.1	32	21	11
EASTERN					
Miles City (Custer)	14,642	2.5	6	--	6

---

1) Based upon an average use rate of 61.2 psychiatric inpatient days per 1,000 population in the Great Falls, Missoula, Butte and Billings psychiatric units in 1977.

2) Based on the probability that an unoccupied psychiatric bed will be available 99% of the time, using the formula:

$$\text{Beds Needed} = ADC + 2.33\sqrt{ADC}.$$

TABLE 2 - Estimated Bed Need
for Acute Care Psychiatric Units
in Selected Montana Hospitals

September 15, 1978

REFERENCES

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4.4

SUMMARY

CLINICAL LABORATORIES

Clinical laboratory services examine specimens from the human body to help detect, diagnose, or monitor a patient's illness.

A major trend in clinical laboratories has been toward heavier workloads. The demand for laboratory services is increasing at an annual rate of 14-18 percent.

There are problems in establishing exactly what procedures are presently available in Montana and the quality of those services. Most types of laboratory procedures can be performed in the state, but there are more sophisticated tests referred to other out-of-state medical centers.

Thirty one pathologists practice in Montana. Many of these pathologists serve several hospitals and cannot make required periodic visits to hospitals they serve.

The number of qualified medical technologists and technicians in the state is considered inadequate for the population served. There is also a problem with maldistribution between urban and rural areas.

State registration, inspection and certification should be attained in 1983 through the Bureau of Licensing and Certification.

Centralizing laboratory services should be studied also by 1983.

September 15, 1978

CLINICAL LABORATORIES

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

1. Quality laboratory services are an integral part of the health care system and should be available and easily accessible to every Montanan at a reasonable cost.

2. The State Laboratory Division should continue to emphasize continuing education and qaulity control programs, taking care not to duplicate existing resources, but filling gaps where they exist.

3. By 1983, state registration, inspection and certification programs for facilities and personnel performing laboratory procedures should be centered in one agency of state government.

OBJECTIVES:

1. By 1983, the feasibility of sharing or centralizing laboratory services should be studied. Examples where sharing or centralizing may be feasible are Billings, Great Falls, Missoula, Miles City, Helena, Butte, Warm Springs and Galen.

2. By 1985, hospital and large independent laboratories should consider marketing their services to physicians and smaller laboratories.

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RECOMMENDED REVIEW CRITERIA FOR

CLINICAL LABORATORIES

APPROXIMATE COSTS:

As the costs to patients for laboratory services are about ten percent of the total amount spent for health care, laboratory services should be cost efficient. To promote this concept, the following guidelines should be considered:

1) Laboratories should participate in a uniform reporting system and make available to the public, through a rate review mechanism, the cost information of those laboratories.

2) Duplication of laboratory tests and laboratory equipment should be avoided where possible; for example, by sharing laboratory equipment.

3. Laboratories should participate in an accepted "blind" quality control program to help minimize costs in addition to helping decrease hazards of probable laboratory errors, maintain quality results, and better serve the patient.

4) Depending on the test procedure involved, time intervals between ordering and receiving laboratory tests should be minimized.

AVAILABILITY:

At least emergency laboratory services should be available to physicians (either at a hospital or by arrangement with another laboratory) on a 24-hour a day, seven day a week basis, with laboratory personnel capable of performing needed tests available on an on-call basis.

ACCESSIBILITY:

Many laboratory tests must be performed within a specified time limit. If the specimen received by a laboratory has been substantially delayed, the results of individual laboratory tests are not useful for accurate diagnosis. Some specimens are particularly sensitive to transportation delay. Thus, the proposed facility should be located within an acceptable distance from where the specimens are drawn.

CONTINUITY:

Laboratories must develop a communication system between their staffs and the medical staffs they serve. This system should include a method for non-laboratory medical staff to order tests and deliver specimens for testing and a method for laboratory staff to report on the condition of the specimens received, to report on the analyses performed, and the results of the analyses. The system must include adequate documentation.

QUALITY:

Because an incorrect test result by a clinical laboratory can have disastrous effects on a patient, internal and external quality control is important. All clinical laboratories (including those located at hospitals, group practices, physician's offices, public health departments and independent sites) should participate in a quality control program which includes, at a minimum, checks for the following:

- Successful participation in an accepted proficiency testing program which involves testing unknown samples sent to the laboratory by the testing program.
- Qualified personnel perform only those tests for which they have proper training and expertise.
- Proper maintenance and documentation of equipment, reagents and supplies.
- Use of an acceptable standard operating procedures manual listing approved procedures for each test performed.
- Documentation of an in-service training program.
- Use of a valid specimen and records management system.
- Availability of continuing medical education programs for laboratory staff, as well as education of physicians in the effective use of laboratory services.

Examples of available quality control programs include those of the College of American Pathologists, the National Center for Disease Control, the American Association of Bioanalysts, and the American Society for Internal Medicine.

1.0 Background

Clinical (medical) laboratory services examine specimens from the human body, including blood, urine, gastric juices and other body fluids, to help physicians detect, diagnose or monitor a patient's illness. Clinical laboratories can be located at hospitals, group practice clinics, physicians' offices, independent sites, industrial sites, federal, state and local public health departments, and a variety of other settings.

The work performed at these laboratories can be separated into the following specialties and subspecialties:

MICROBIOLOGY
- Bacteriology
- Virology
- Parasitology
- Mycology

SEROLOGY
- Syphilis
- Nonsyphilis

IMMUNOHEMATOLOGY

HEMATOLOGY

CHEMISTRY AND PHYSICS
- Clinical biochemistry
- Sanitary chemistry
- Toxicology
- Nuclear Medicine
- Radioimmunoassay
- Urinanalysis

PATHOLOGY
- Clinical
- Anatomical
  - Surgicals
  - Necropsies
  - Histopathology
  - Hematopathology

CYTOLOGY
  - Histology

A glossary of the above terms can be found in Appendix 4.

Each laboratory will not necessarily be capable of performing all of these procedures. For example, smaller laboratories may be capable of performing only simple hematology, urinalysis and chemistry studies, while other laboratories may specialize in microbiology, pathology, special chemistry, immunohematology, nuclear medicine and other more sophisticated procedures.

Public health laboratories are concerned primarily with the prevention and control of infectious diseases, with epidemiologic studies of such diseases, and with environmental sanitation. In some instances, they also are concerned with, and involved in, providing quality control programs to clinical laboratories.

The studies performed at any particular laboratory will be determined by a number of factors, including the capabilities of the laboratory personnel, the range of medical specialties referring laboratory tests, the scope of medical services available in a community, and the volume of medical services in a community. All laboratory tests must be ordered by a physician.

The College of American Pathologists, which sponsors a voluntary inspection and accreditation program for laboratories, identifies four levels of care through its proficiency testing programs:

- Physicians Office Laboratories.
- Basic Laboratories - small hospital laboratories serving fewer than 100 beds or small independent laboratories.
- Comprehensive Laboratories - large hospital laboratories serving 100 or more beds and large independent laboratories doing sophisticated procedures in microbiology, chemistry, hematology and/or blood banking.
- Special Laboratories - sophisticated microbiology, serology, and toxicology laboratories.

During the past several decades, a major trend in clinical laboratories has been toward heavier workloads. The demand for laboratory services is expanding at an annual rate of 14 - 18 percent. Factors contributing to these increased workloads include:

- Technological advances which have brought about new, often more sophisticated, difficult and time-consuming tests and procedures.
- Increasing use of the laboratory in preventive medicine, including mass screening of patients for early detection of illnesses. (For example, pap smears for cervical cancer, tuberculosis tests, chemistry profiles, etc.).
- More extensive use of laboratory tests by the medical profession, partly because of more emphasis on use of the laboratory in physician training and partly because physicians are defending themselves against the threat of malpractice suits.
- Increased use of the laboratory in monitoring drug effectiveness and drug interactions.
- Increased reimbursement for laboratory tests by third-party payors.
- Population increases.
- Demand for improved medical treatment.

2.0 Description of the Current Situation

It is presently difficult to determine exactly what procedures are available in Montana, what procedures must be referred out of state, and how many procedures are done. Although each laboratory in the state is supposed to register with the Laboratory Division of the State Department of Health and Environmental Sciences, the Division has no systematic method for insuring that this is done. In addition, the Division's registration form asks for information about how many procedures are being done in various test categories, but the reliability of each laboratory's report is questionable. Some are clearly estimates and it is difficult to determine what tests a laboratory should include in a particular category.

The majority, or 51 of Montana's 63 hospital laboratories, can be classified as basic laboratories, serving less than 100 beds. Only 12 hospital laboratories can be classified as comprehensive, serving more than 100 beds. All but three of the independent and physician laboratories perform less than 50,000 procedures per year. The State Laboratory Division, a public health laboratory, performs more than 100,000 tests per year. Eight independent laboratories, 29 physician laboratories, three public health laboratories, five university or Indian Health Service laboratories and one nursing home laboratory are registered with the Laboratory Division. The Veterans Administration facilities in the state are not registered with the Division and some physicians' office laboratories are probably not registered.

Most types of laboratory procedures can be performed in the state, with the exception of extremely sophisticated tests which are referred to Seattle, Denver and other out-of-state medical centers. In addition, some physicians send a large number of specimens to out-of-state laboratories for routine examinations due to the potential cost savings.

Thirty-one pathologists practice in Montana. Since every hospital laboratory is required to have the services of a pathologist on at least a consulting basis, many of these pathologists serve several hospitals. Montana Hospital licensing laws require periodic visits by these pathologists to the hospitals, but because of shortage of the pathologists' time, arrangements are being made to allow a chief medical technologist from a larger hospital, working under the supervision of a pathologist, to perform some of these visits.

The number of qualified medical technologists and technicians in the state is considered inadequate, and there is a problem of maldistribution between urban and rural areas. Colleges and universities in the state training medical technologists are Carroll College in Helena, the University of Montana in Missoula and Montana State University in Bozeman. Medical technology internships are available at St. James Hospital in Butte and Columbus and Deaconess Hospitals in Great Falls. In addition, the Missoula hospitals, in cooperation with the University of Montana, have recently begun an internship program.

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To meet the demands placed upon them by heavier workloads, many laboratories have automated their equipment procedures. This has made it possible to increase their capacity to process larger numbers of test samples and rapidly perform multiple tests on a single sample, with increased accuracy. However, manual methods are still used by many laboratories and serve as the basis for automated procedures. They continue to be used both for routine work and for back-up if automated equipment fails.

In many smaller laboratories, installation of costly, sophisticated automated equipment is infeasible because the volume of tests is insufficient to justify or maintain high utilization levels. Automation is more feasible in laboratories which perform a high volume of similar tests. To create this volume, and to eliminate costly duplication of sophisticated equipment, many areas have begun sharing or centralizing laboratory services.

Still another trend in laboratory services has been greater regulation. Part of this regulation is the result of Medicare/ Medicaid requirements. However, some of the regulation has come about because of allegations of laboratory inaccuracy, fraud and abuse. Congress has passed the Clinical Laboratory Improvement Act of 1967 (CLIA 67) to regulate laboratories operating in interstate commerce and is considering a CLIA 78 which could impose similar regulations on all laboratories.

3.0 Plan for the Future

An estimate of laboratory service need should be based on:

- Gaps in existing services.
- Health status of area residents, including incidence and prevalence of specific illnesses and environmental problems affecting health.
- Manpower, including a breakdown of the number and types of physician specialties and the availability of medical technologists and other support personnel.
- Estimated growth of laboratory services.
- Comparisons of service area and population with similar areas.

Because of the problems described in obtaining reliable data on clinical laboratories, it is difficult to determine where gaps exist in laboratory services in the state.

The estimated growth of laboratory services, based on trends over the past several years, is 14 - 18 percent per year. To what degree laboratories will need to expand will be determined by a combination of the above factors.

Individual laboratories can compare the size of their service areas and hospitals with similar laboratories to approximate the volume they may expect. Nationally, the trend is that hospital laboratories will perform more tests per hospital admission as the size of the hospital increases. According to one report, the median number of laboratory tests per hospital admission, by the size of the hospital was as follows in 1976:

Less than 50 Beds	50-74 Beds	75-99 Beds	100-149 Beds	150-199 Beds	200-299 Beds
14.73	17.66	19.35	22.19	22.73	26.93

A comparison of Montana hospitals with this national data is not possible without a breakdown of inpatient versus outpatient tests. This data, although gathered as part of the hospital's annual report form, is not reliable because some hospitals apparently report laboratory visits instead of tests.

The number of outpatient tests performed in an individual laboratory will vary according to the number of other laboratories in a service area and the types and numbers of health personnel available.

4.5

SUMMARY

DIAGNOSTIC IMAGING

Diagnostic radiology, nuclear medicine, ultrasound and xeromammography equipment, used to visualize internal body structures, are typically found in the radiology and/or laboratory departments of hospitals, in physician offices, and in general medical clinics. The costs of the equipment associated with these services almost always require their purchase and or replacement to be reviewed.

This component documents where these services are presently being provided and their current levels of utilization. The plan lacks specific guidelines and standards, but emphasizes financial feasibility, minimal duplication and qualifications of professionals providing the service.

To achieve rational development of, and accessibility to diagnostic imaging services throughout Montana, the MHSA will develop a more detailed plan for the expansion of nuclear medicine, ultrasound and xeromammography by 1980. By 1985 each diagnostic radiology facility would ideally have the staff, equipment and space for the appropriate patient load.

October 11, 1978

DIAGNOSTIC IMAGING

GOALS, OBJECTIVES AND RECOMMENDED REVIEW CRITERIA

GOAL:

To provide for the rational development of diagnostic imaging (radiology, nuclear medicine, ultrasound, and xeromammography) services in Montana. These services should be reasonably accessible to the population while also cost justified and non-duplicated.

OBJECTIVES:

1) By 1985, each diagnostic radiology facility ideally should have the equipment, staff and space commensurate with its patient load.

2) By 1980, develop a regional plan for the expansion of nuclear medicine, ultrasound and xeromammography facilities.

REVIEW CRITERIA FOR DIAGNOSTIC IMAGING FACILITIES:

1) Each service should be under the supervision of a physician trained and/or experienced in the field (diagnostic radiology, nuclear medicine, ultrasound, and xeromammography). In most cases this would be a general radiologist, but other physicians may have sufficient training in nuclear medicine and ultrasound to satisfy this criterion.

2) Appropriately qualified and trained support personnel must be available to perform the procedures.

3) Duplication of the same service in the immediate area should not be encouraged.

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1.0 Background

The term diagnostic imaging refers to those medical procedures which are used to visualize internal body structures. These include the fields of:

- Diagnostic Radiology
- Nuclear Medicine
- Ultrasound
- Xeromammography

Diagnostic radiology involves the use of x-rays; nuclear medicine involves the insertion of radioactive tracer materials (radioisotopes) into the patient's body; ultrasound functions much like sonar, utilizing sound waves to penetrate tissues and then recording their echoes. Ultrasound is particularly useful in obstetrical services to monitor fetal heart beats. Both nuclear medicine and ultrasound have some therapeutic applications, but they are primarily used in diagnostic work. Xeromammography is a special diagnostic procedure used to detect breast cancer.

In a hospital, diagnostic radiology, ultrasound and xeromammography are usually found in the radiology department under the supervision of a general radiologist. Nuclear medicine may be found either in the radiology department under the supervision of a general radiologist or in the laboratory department under the supervision of a pathologist. A large proportion of the nuclear medicine studies require that samples be analyzed in the laboratory. These type of procedures (i.e., those done in the laboratory) are called in-vitro procedures while the radiological procedures are primarily in-vivo procedures. Each of these services can also be found in ambulatory settings such as physician offices and general medical clinics.

The purpose of these guidelines is to document where these services are currently being provided and to establish general criteria for the review of the proposed development of new services and the expansion of existing services in Montana. It is emphasized that all hospitals must provide at least basic radiology services. The more complex radiological, nuclear medicine and ultrasound equipment, however, must be rationally allocated so that they are efficiently utilized and accessible to all Montanans. More and more hospitals are considering expanding their services to include nuclear medicine and ultrasound capability.

The equipment associated with these services is extremely expensive and their purchase, except to replace existing equipment, would probably be reviewed by the Health Systems Agency. Some typical minimum costs are:

Diagnostic Radiology	
- General radiographic (X-ray) unit	$ 40,000
- Radiographic and Fluoroscopic Room	170,000
- General Purpose Special Procedures Room (for specialized studies)	300,000
Nuclear Medicine	
- Basic Gamma Camera	$100,000
- Rectilinear Scanner	40,000
Ultrasound	
- Simple System for Cardiac Studies	$ 20,000
- Compound B Scanner	60,000
- Real Time Unit	30,000
- Computer System	100,000
Xeromammography	$ 66,000*

In recent years, equipment used in these services has become most sophisticated and more costly. At the present time, diagnostic radiology, nuclear medicine and ultrasound have computerized systems available. At the same time, it appears that new applications are being developed in each of these areas.

In contrast, the utilization of xeromammography units has dropped considerably in recent months apparently because of concern over radiation exposure. Research is being conducted into alternative ways of performing mammograms with little or no radiation.

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*Includes the cost of a dedicated mammography X-ray machine. Most units are leased at a rate of $700/month. It costs $800/month for a contract which can be cancelled at any time.

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2.0 Description of the Current Situation

2.1 Diagnostic Radiology

Tables 1 through 5 show the number of inpatient and outpatient radiological exams performed in Montana hospitals in 1977. As a rule of thumb, the American College of Radiology has suggested that facilities should plan general radiology workload requirements with the estimate of between 0.18 and 0.20 exams per bed occupancy day. Non-emergency, outpatient demands can be estimated at the rate of one examination per five or six outpatient visits.[1)]

An examination of Tables 1 through 5 indicate most Montana Hospitals seem to have inpatient ratios similar to those suggested by the American College of Radiology. The outpatient exams appear to be higher than the general rule of thumb. One possible explanation for this deviation is that outpatient visits in the small Montana Hospitals are considerably different from those observed in large metropolitan areas. Most Montana Hospitals do not have outpatient clinics such as are found in metropolitan areas. Instead they are used as an adjunct to the physician's offices where special services such as x-rays, physical therapy and laboratory services are available.

2.2 Nuclear Medicine

Figure 1 indicates those hospitals currently having either in-vitro (laboratory) or in-vivo (radiology) nuclear medicine capability. Table 6 shows the number of each type of exam performed by these facilities in 1977. No attempt has been made to interpret this data at this time and no attempt has been made to define the respective catchment areas of each facility.

It is noted that nuclear medicine facilities are monitored and regulated by the Nuclear Regulatory Commission and facilities need to obtain a license from them before they can handle radioactive materials.

2.3 Ultrasound

Figure 2 also shows those hospitals which currently possess ultrasound capabilities. These do not include facilities which perform echocardiograms (an ultrasonic procedure used in diagnosing heart disease). Table 7 also indicates the number of ultrasonic procedures performed by each facility in 1977. Again no attempt has been made to either interpret the numbers or define each facility's catchment area.

2.4 Xeromammography

It appears that most xeromammography units in Montana are found in private physician's offices and therefore are currently beyond the purview of the HSA. Two hospitals, Billings Dea-

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COUNTY	HOSPITAL	INPATIENT RADIOLOGICAL EXAMS	INPATIENT PATIENT DAYS	INPATIENT EXAM P. DAYS	OUTPATIENT RADIOLOGICAL EXAMS	OUTPATIENT VISITS1)	OUTPATIENT VISITS EXAM
Lincoln	St. John's Luth.	936	4587	.20	3789	6341	1.67
Flathead	Kalispell Reg.	N/A			N/A		
	North Valley	4457 2)					
Sanders	Clark Fork Valley	2729 2)					
Lake	St. Joseph's	1370	6943	.20	1874	8775	4.68
	St. Luke Comm.	499	3584	.14	2093	4768	2.28
	Mission Valley	354	1548	.23	539	2928	5.43
Mineral	Mineral County	368	1331	.28	1324	4389	3.31
Ravalli	Marcus Daly Mem.	1346	9390	.14	3328	3565	1.07
Missoula	Missoula General	1991	8399	.24	1061	8457	7.97
	Missoula Comm.	6044	23295	.26	4086	14068	3.44
	St. Patrick	15216	46275	.33	7170	16905	2.36
	TOTAL	28124	105352	.27	25264	70196	2.78

1) Includes Emergency Visits
2) Inpatient and Outpatient Visits not separated.

TABLE 1 - Number of Inpatient & Outpatient
Diagnostic Radiological Procedures
Performed in Northwestern Montana
Hospitals (1977)

SOURCE: Unpublished Data from the 1977 Hospital Annual Reports, Montana State Department of Health & Environmental Sciences. Does not include examinations performed in the emergency room.

COUNTY	HOSPITAL	INPATIENT RADIOLOGICAL EXAMS	INPATIENT PATIENT DAYS	INPATIENT EXAMS P. DAYS	OUTPATIENT RADIOLOGICAL EXAMS	OUTPATIENT VISITS1)	OUTPATIENT VISITS EXAM
Glacier	Glacier Co. Mem.	1442	3517	.41	2445	6094	2.49
Toole	Toole County	650	2496	.26	647	2851	4.40
Pondera	Pondera County	2661	9682	.27	1410	3937	2.79
Teton	Teton Memorial	765	3371	.23	1087	2845	2.62
Cascade	Montana Deaconess	20978	60179	.35	8419	27826	3.31
	Columbus	8612	53512	.16	6269	25483	4.06
Chouteau	Chouteau Co. Dist.	513	2422	.21	539	3308	6.14
	Big Sandy	N/A			N/A		
Hill & Blaine	Northern Montana	7914	21222	.37	4770	15040	3.15
Liberty	Liberty County	264	1844	.14	644	685	1.06
	TOTAL	43799	158244	.28	26230	88069	3.36

1) Includes Emergency Visits

TABLE 2 - Number of Inpatient & Outpatient
Diagnostic Radiological Procedures
Performed in North Central Montana
Hospitals (1977)

SOURCE: Unpublished Data from the 1977 Hospital Annual Reports, Montana State Department of Health & Environmental Sciences. Does not include examinations performed in the emergency room.

		INPATIENT			OUTPATIENT		
COUNTY	HOSPITAL	RADIOLOGICAL EXAMS	PATIENT DAYS	EXAMS P. DAYS	RADIOLOGICAL EXAMS	VISITS[1]	VISITS EXAM
Beaverhead	Barrett Memorial	N/A			N/A		
Madison	Ruby Valley	351	1811	.19	498	1766	3.55
	Madison Valley	N/A			N/A		
Callatin	Bozeman Deaconess	11024[2]					
Lewis & Clark & Jefferson	St. Peter's	10466	34713	.30	6563	9309	1.42
	Shodair Crippled Children's	799	4552	.18	876	12604	14.39
Broadwater	Broadwater	N/A			N/A		
Meagher	Mountain View	N/A			N/A		
Silver Bow	St. James Comm.	7324	39721	.18	9076	24550	2.70
	Silver Bow Gen.	N/A			N/A		
Deer Lodge	Comm. Hospital of Anaconda	2304	8514	.27	3890	18252	4.69
Powell	Powell Co. Mem.	862	5373	.16	897	2932	3.27
Granite	Cranite Co. Mem.	98	813	.12	109	799	7.33
Park	Livingston Mem.	1373	7376	.19	1049	11441	10.91
	TOTAL	23577	102873	0.22	22958	81653	3.56

1) Includes Emergency Visits
2) Inpatient and Outpatient Exams Not Reported Separately

TABLE 3 - Number of Inpatient & Outpatient
Diagnostic Radiological Procedures
Performed in Southwestern Montana
Hospitals (1977)

SOURCE: Unpublished Data from the 1977 Hospital Annual Reports, Montana State Department of Health & Environmental Sciences. Does not include examinations performed in the emergency room.

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		INPATIENT			OUTPATIENT		
COUNTY	HOSPITAL	RADIOLOGICAL EXAMS	PATIENT DAYS	EXAMS P. DAYS	RADIOLOGICAL EXAMS	VISITS[1]	VISITS EXAM
Fergus, Petroleum & Judith Basin	Central Montana	2374	8099	.29	1863	4979	2.67
Wheatland & Golden Valley	Wheatland Mem.	406	2037	.20	844	2863	3.39
Musselshell	Roundup Mem.[2]						
Sweet Crass	Sweet Grass Comm.	148	1320	.11	475	1855	3.91
Stillwater	Stillwater Comm.	564	3510	.16	423	1655	3.91
Carbon	Carbon Co. Mem.	877	4274	.21	452	1971	4.36
Big Horn	Big Horn Co.	559	2654	.21	356	1546	4.34
Yellowstone	Billings Deaconess	6164[3]	56038	.11	5495	12018	2.19
	St. Vincent	10161	64872	.16	3411	60209	17.65
	TOTAL	15703	142803	.11	13319	87096	6.54

1) Includes Emergency Visits
2) Closed During 1977.
3) Statistics indicate the number of exposures and therefore are not comparable.

TABLE 4 - Number of Inpatient & Outpatient
Diagnostic Radiological Procedures
Performed in South Central Montana
Hospitals (1977)

SOURCE: Unpublished Data from the 1977 Hospital Annual Reports, Montana State Department of Health & Environmental Sciences. Does not include examinations performed in the emergency room.

COUNTY	HOSPITAL	INPATIENT RADIOLOGICAL EXAMS	INPATIENT PATIENT DAYS	INPATIENT EXAMS P.DAYS	OUTPATIENT RADIOLOGICAL EXAMS	OUTPATIENT VISITS 1)	OUTPATIENT VISITS EXAM
Valley	Frances Mahon Dea.	1345	7692	.17	923	2723	3.64
Daniels	Daniels Memorial	152	1560	.10	328	982	2.99
Sheridan	Sheridan Memorial	821 2)					
Roosevelt	Roosevelt Memorial Trinity Poplar Community	507 N/A 1698 2)	2826	.18	155 N/A	1266	8.17
McCone	McCone County	454	3260	.14	424	679	1.60
Garfield	Garfield County	95	466	.20	265	386	1.39
Richland	Community Memorial	3266	12021	.27	1863	6082	3.26
Dawson & Wibaux	Glendive Community	1562	10199	.15	1920	11715	6.10
Rosebud & Treasure	Rosebud Community						
Custer & Powder River	Holy Rosary V.A. Hospital (Miles City) 1)	3922	17314	.23	780	4047	5.19
Prairie	Prairie Community	1103	783	1.41	1161	422	.363
Phillips	Malta Hospital	590	7861	.08	350	2074	5.93
Fallon	Fallon Memorial	281	1092	.26	946	4149	4.38
Carter	Dahl Memorial	N/A			392	1238	3.16
	TOTAL	13277	65074	.20	9507	35763	3.76

1) Includes Emergency Visits
2) Inpatient and Outpatient Exams Not Separated

TABLE 5 - Number of Inpatient & Outpatient
Diagnostic Radiological Procedures
Performed in Eastern Montana Hospitals (1977)

SOURCE: Unpublished Data from the 1977 Hospital Annual Reports, Montana State Department of Health & Environmental Sciences. Does not include examinations performed in the emergency room.

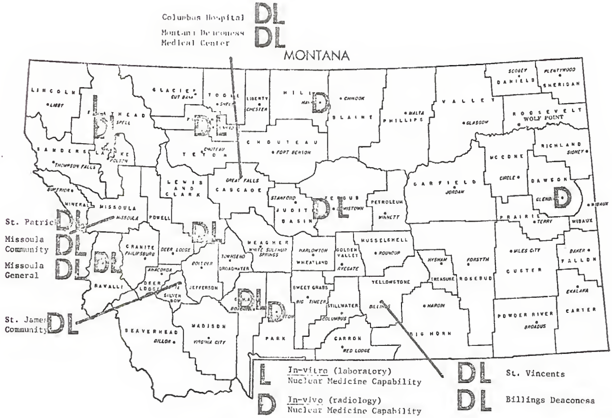

FIGURE 1 - Location of Hospitals in Montana with Nuclear Medicine Capabilities (1978)

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SUBAREA & FACILITY	NUMBER OF NUCLEAR MEDICINE PROCEDURES PERFORMED (1977) In-Vivo (Diagnostic Imaging)	In-Vitro (Laboratory)	Total
Northwestern			
Kalispell Regional Hospital (Kalispell)	N/A	N/A	589
North Valley Hospital (Whitefish)	---	400 1)	400 1)
Missoula General Hospital (Missoula)	214	1080	1294
Missoula Community Hospital (Missoula)	274	---	274
St. Patrick Hospital (Missoula)	1037	---	1037
Marcus Daly Hospital (Hamilton)	20	---	20 5)
North Central			
Pondera County Hospital (Conrad)	394	940	1334
Montana Deaconess Medical Ctr. (Great Falls)	1604	1984	3593
Columbus Hospital (Great Falls)	1482	2179 2)	3661
Nor[illegible] Montana Hospital (Ha[illegible]	632	---	632
Southwestern			
St. James Community Hospital (Butte)	2162	2347	4509
Livingston Memorial Hospital (Livingston)	18 3)	---	18 2)
St. Peters Hospital (Helena)			
Bozeman Deaconess Hospital (Bozeman)			
South Central			
Central Montana Hospital (Lewistown)	202	505 4)	707
Billings Deaconess Hospital (Billings)	2000	6600	8600
St. Vincent Hospital (Billings)	1480	4357	5837
Eastern			
Glendive Community Hospital (Glendive)	67	0	67

1) Thyroid levels only.
2) In addition, 8,866 multichem tests which contain T_3 tests were performed.
3) For the period between November 22, 1977 and December 31, 1977.
4) Estimated by D. [illegible], M.D.
5) Services started May, 1978.

TABLE 6 - Number of Nuclear Medicine Procedures Performed, by type, In Montana Hospitals during 1977.

SOURCE: Unpublished Data From an HSA Survey (August 1978)

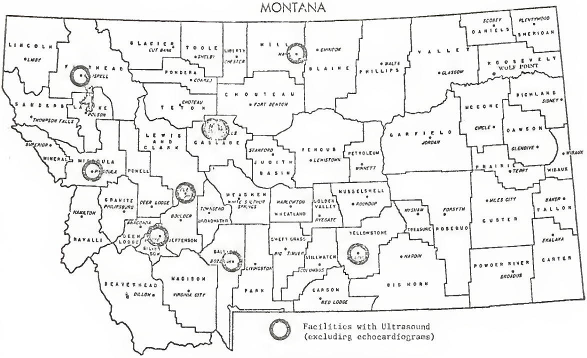

FIGURE 2 - Hospitals in Montana with Ultrasound Capability (1978)

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Subarea and Facility	Number of Ultrasound Procedures Performed (1977)
Northwestern	
Missoula Community Hospital (Missoula)	552
Kalispell Regional Hospital (Kalispell)	97[1)]
North Central	
Montana Deaconess Medical Center (Great Falls)	983
Columbus Hospital (Great Falls)	N/A[2)]
Northern Montana Hospital (Havre)	245
Southwestern	
St. James Community Hospital (Butte)	330
Bozeman Deaconess Hospital (Bozeman)	180 (est.)[3)]
St. Peter's Hospital (Helena)	279
South Central	
St. Vincent's Hospital (Billings)	1,036

[1)] Reflects utilization from September through December, 1977.

[2)] Service initiated September 1, 1977. Data not available.

[3)] Service initiated September, 1977, estimate based upon an average of three procedures/day.

TABLE 7 - Number of Ultrasound Procedures (excluding echocardiograms) Performed in Montana Hospitals During 1977)

Source: Unpublished data from an HSA Survey (Aug. 1978).

coness and Columbus (Great Falls) have xeromammography units. The location of these units are displayed in Figure 3 and the number of procedures performed are shown in Table 8. Again, no attempt has been made to interpret the workloads or to define catchment areas.

3.0 Plan For The Future Development of Diagnostic Imaging Services

There are few guidelines and standards for diagnostic imaging services. The primary theme which should be emphasized is:

- financial feasibility (i.e. potential for generating more revenue than operating costs)
- minimizing duplication of these services in any one community, and
- some assurance of an adequate workload so that the professionals providing the service remain proficient.

Unfortunately, there are no standards for these concepts. Crude estimates have been developed by the Hospital Survey Committee (Philadelphia) to estimate the number of diagnostic x-ray rooms needed based on the number of procedures performed per day.2) These are:

Procedures Per Day	Number of Rooms Needed*
20 or less	1
21 - 45	2
46 - 70	3
71 -105	4
106 -135	5
136 -162	6
163 -189	7
190 -216	8
217 -243	9

*It is recognized that a small rural hospital with one basic fluoroscopic/radiographic machine may necessitate a back-up machine in the event of equipment malfunction.

One study has suggested that a population base of between 50,000 and 70,000 people is needed to support a single nuclear medicine facility.3) Another study has indicated hospitals of the size found in Montana are likely to perform less than 2,400 nuclear medicine (in-vivo and in-vitro, combined) procedures annually.4) However, because a great number of modifications in Nuclear Medicine Departments is possible, simple standards cannot be stated.

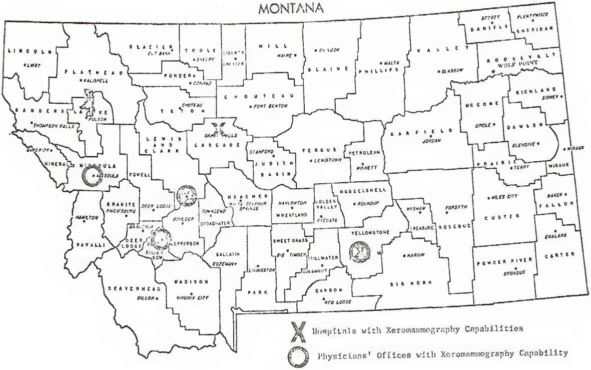

FIGURE 3 - Location of Xeromammography Units in Montana (1978)

Subarea and Facility	Type of Facility	Number of Xeromammograms Performed (1977)[1]
Northwestern		
Western Montana Clinic (Missoula)	Physicians' Office	220-300[2]
North Central		
Columbus Hospital (Great Falls)	Hospital	384
Southwestern		
Butte Radiological Associates (Butte)	Physicians' Office	700[3]
Helena Radiological Associates PSC (Helena)	Physicians' Office	
South Central		
Eastern Radiological Associates (Billings)	Physicians' Office	1,200 (est.)[4]
Billings Deaconess (Billings)	Hospital	307

[1] Excluding specimen mammograms.

[2] Based on an average of 5-6 per week, estimated by Andrew McKane, M.D.

[3] Estimated by J.M. Driscoll, M.D.

[4] Estimated by Virgil Walker, R.T.

TABLE 8 - Number of Xeromammograms Performed in Montana Facilities During 1977.

Source: Unpublished data from an HSA Survey (Aug. 1978).

Similarly, no estimates of the number of ultrasound procedures or xeromammography exams required to break even is available.

3.2 Estimate of Service Need

Estimating the need for the various types of diagnostic imaging services in Montana appears to be beyond the current state of the art and therefore no levels of service can be recommended.

REFERENCES

1. Brogdon, B.G. and W.J. Tuddenham, "Department Planning: Fundamental Considerations for Diagnostic Radiology" in Planning Guide for Radiological Installations, Fascicle 4; Basic Concepts, prepared under the auspices of the Committee on Department Planning, Commission on Radiologic Equipment and Facilities, American College of Radiology, 1977.

2. Hospital Survey Committee, Cost Containment and Financing of Hospital Construction, Philadelphia, 1974.

3. Orkand Corporations, Guidelines for Nuclear Medicine Services, 1976.

4. Siemsem, J.K., et al, Report of Committee on Nuclear Medicine Departmental Facilities to the American College of Nuclear Physicians, May, 1976.

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4.6

SUMMARY

LONG TERM CARE FACILITIES

This component addresses those long term care beds medically necessary for health maintenance, providing inpatient care for the elderly, the convalescing, and chronic disease patients.

A recent trend in long term care in Montana is that of overbuilding by the State. In July, 1977, a more restricted formula was developed and a moratorium on future approvals was declared. This moratorium was in effect until March 14, 1978. Until alternatives to long term care in Montana can be identified and assessed as to their viability, the MHSA recommends a reinstitution of the moratorium on long term care bed construction for a one year period.

Although no data is available, there currently appears to be a shortage of personal care homes, group homes, adult foster care centers and geriatric day care centers. If these facilities are built and become operational, less demand for long term beds should be in evidence.

Using a formula consistent with national figures, (61 beds per 1,000 population) we conclude only three counties will need an additional 15 to 40 beds by 1985. They are: Ravalli (37 beds), Musselshell (22 beds), and Rosebud/Treasure (20 beds).

With 16 counties presently having a surplus of over 20 long term care beds, and with the statewide ratio of 76.3 beds per 1,000 elderly population, MHSA would encourage the development of alternatives to long term care facilities, implementation of the swing bed concept and more appropriate placement practices for the long term care resident.

By 1980 a coordinated effort should be in evidence between MHSA and other groups affiliated with the aged, for the improved identification of problems facing the elderly.

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LONG TERM CARE FACILITIES

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOALS:

1. By 1985, long term care beds should be readily and locally available to residents needing this type of care to avoid any excessive travel time to a facility and to avoid any psychological adjustments necessary by residents who otherwise would have to live far away from home. The planning goal used in this component for long term care bed construction is 61 beds per 1,000 elderly population who medically need this type of care.

2. The inappropriate placement of long term care residents in nursing homes is to be discouraged.

OBJECTIVES:

1. Long term care bed construction should be discouraged for a twelve month period to avoid possible over-bedding and allow sufficient time for an assessment of long term care alternative living arrangements and possible reimbursement mechanisms for this care.

2. The development of alternatives to long term care facilities should be stressed and be given preference over the future construction of these facilities. By 1980, the HSA should identify the various sources of federal funds to assist in the financing of retirement homes, group homes, and other less restrictive living arrangements. Programs providing seed money for the establishment of adult foster care programs, geriatric day care centers and home health care agencies should be identified and solicited. In addition, the HSA should work toward a more stable reimbursement framework for these alternatives.

3. The swing bed concept should be implemented in Montana. The type of long term care provided by facilities participating in this program should be consistent with Medicaid guidelines for intermediate and/or skilled care.

4. In rural, sparsely populated communities with bed needs of less than 40, the development of combination hospital/long term care facilities should be encouraged where there is clear evidence of need. Also, if proven to be cost effective, services such as dietary or laundry should be shared between the hospital and long term care facility.

5. By 1980, efforts should be coordinated between the HSA and other groups affiliated with the aged to identify the specific health problems of the elderly and the programs that could be implemented to alleviate these problems.

RECOMMENDED CRITERIA FOR REVIEW OF LONG TERM CARE FACILITIES:

Some of the following guidelines are covered by state licensing and reimbursement regulations and must be complied with in order to operate a long term care facility in Montana. They are restated in this document to emphasize HSA's concern in specific areas.

1. Proposed construction, expansion, and modernization plans must be compatible with the estimated bed need of the service area.

2. Possible alternative methods of providing long term care should be fully explored by any facility proposing construction, and/or expansion.

3. Adequate capital should be available to cover the cost of operating the proposed project. The applicant's expectations regarding the "mix" of the anticipated population by source of payment (i.e. Medicare, Medicaid, 3rd Party and Private Pay) should be consistent with either the current experience of existing facilities in the area offering similar services or the past experience of the applicant.

4. The individual components of the total project cost should be reasonable and legitimate expenditures. If the applicant intends to lease, rather than purchase the facility, the applicant must document 1) why leasing is preferred, and 2) the overall difference in cost between leasing and purchasing.

5. All parties and interests having 10 percent or more interest in the project should be clearly identified, and all contractual arrangements for goods and services should be fully documented. All professional fees which are included as part of the total project cost should be explained and justified.

6. The director of nursing should be well qualified to fulfill his or her responsibilities in administering the provision of nursing services. Any proposed project should be staffed by an adequate number of appropriately trained nursing personnel. For skilled nursing facilities, minimum staffing levels by number of beds have been established by the State.11)

7. Resident's rights should be defined in writing, and appropriate steps should be taken to ensure that all staff, owners or operators, and residents are aware of, understand, and comply with these rights.

1.0 Background

Long term care involves the provision of those services, physical, psychological, spiritual, social, and economic, needed to help people maintain and eventually regain, if possible, an optimal level of functioning. This component will address those long term care beds medically necessary for health maintenance throughout the life span as well as care during acute protracted illness and disability. Defined in this way, long term care facilities provide inpatient care for the elderly, the convalescing, and chronic disease patients who require professional nursing care and related medical services.

Currently, there are four levels of long term care nursing beds licensed in Montana, skilled, intermediate A and B, and intermediate care for the mentally retarded (ICFMR). Skilled nursing beds offer continuous skilled nursing care twenty-four hours per day. Intermediate A and B care beds only provide for limited skilled nursing services in addition to personal care. Intermediate B beds have been phased out in Montana and no new intermediate B beds are being licensed. Under intermediate care for the mentally retarded facilities, group homes could be licensed to provide this service. These ICFMR beds, along with long term care beds which are not needed for medically necessary care, will be subsequently addressed as plan components.

Concise definitions for distinguishing between skilled and intermediate care beds are not available. For the purposes of this component, Medicare definitions used by the Montana Foundation for Medical Care are used to classify residents of long term care facilities.

In addressing the future need for long term care beds in Montana, these guidelines do not make separate estimates for skilled and intermediate beds. To be compatible with licensing requirements, it is suggested that facilities allocate their beds in initial applications and base their analysis of financial feasibility on this allocation. After the review is conducted and the license is awarded, the allocation will be fixed. Any changes in the allocation of beds in operating facilities will continue to be subject to review.

Long term care facilities operated by state and federal governments are not addressed in this component. These facilities are not subject to the same regulations, have restricted admission policies, and do not serve just the local communities in which they are located. Included are the Montana Veteran's Home in Columbia Falls, the Montana Center for the Aged in Lewistown, the Eastmont Human Services Center in Glendive, and the Veterans Administration hospital in Miles City.

2.0 Description of Current Situation

The geographical distribution of long term care facilities is illustrated in Figure 1. Of the 58 cities and towns with populations of 1,000 or more, 48 have nursing homes. In addition, there are 15 towns with populations of less than 1,000 which also have a long term care facility.

In 1973, the United States had 51.9 long term care beds/1,000 persons aged 65 years and older. In Montana, there were 56.0 long term care beds/1,000 elderly.2) By 1976 this ratio had increased to 67.4 beds/1,000 elderly, and now, in 1978, there are 76.3 beds/1,000 elderly in Montana.

Although there are no national standards for the number of long term care beds needed to serve a population of a given size, a number of states have specified target ratios. Texas, for example, is using 80 beds per 1,000 elderly population while Massachusetts is using 63.8 beds per 1,000 elderly. Massachusetts has also established 25.8 boarding home beds per 1,000 elderly as well.3,4)

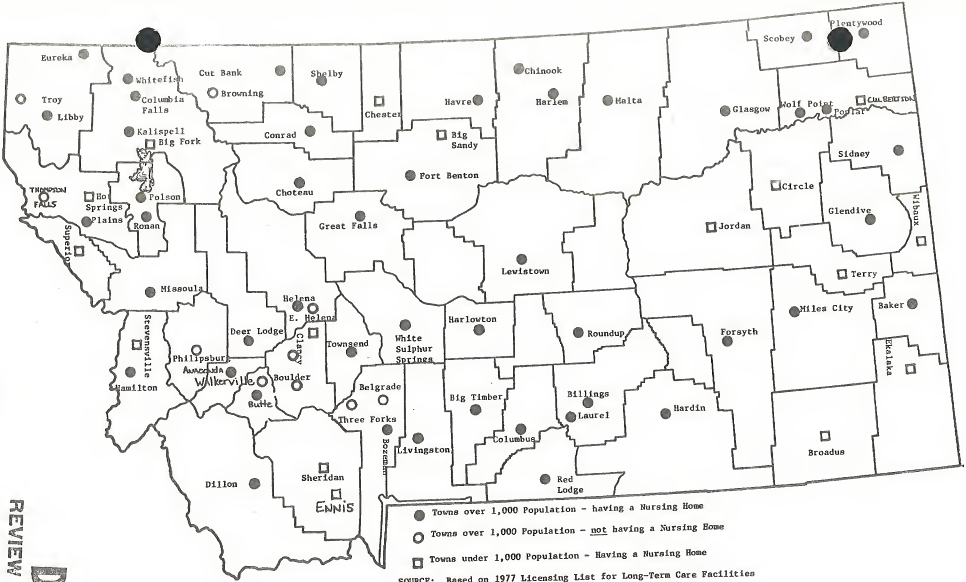
The average size of nursing homes in Montana is relatively small, 63 beds. Ries and Christenson have pointed out that larger facilities would be more economical to operate in Montana.5) For example, they have indicated that the most economical size for long term care facilities in Montana would be 122 beds. On the other hand, geography and the small population densities characteristic to Montana dictate that small facilities be built if they are to be accessible.

The average cost (expense) per patient day in long term care facilities in Montana was $23.78 in 1977. Some of the county operated long term care facilities receive subsidization from the county and therefore understate the average cost per patient day. An assessment of how much these facilities receive from county funds is not available at this time.

As shown in Figure 2, the state's annual Medicaid expenditure for nursing home (skilled nursing, intermediate high, and intermediate low) care in 1977 was $21,535,560. In fiscal years 1976 and 1977, 50 percent of the Medicaid budget went for financing nursing home costs. In 1976, $16.7 million was expended for this care.

The majority of long term care facilities in Montana are operated by proprietary (for profit) organizations. However, there are a number of nursing homes, around 30 percent, which are operated in conjunction with hospitals. Most of these are small facilities with an average long term bed complement of 38. Combination facilities appear to be one viable method of delivering both acute and long term care services to rural areas.

Several factors may change the long term care delivery system in Montana over the next few years. These include:



SOURCE: Based on 1977 Licensing List for Long-Term Care Facilities

FIGURE 1 - Location of Long Term Care Facilities in Montana

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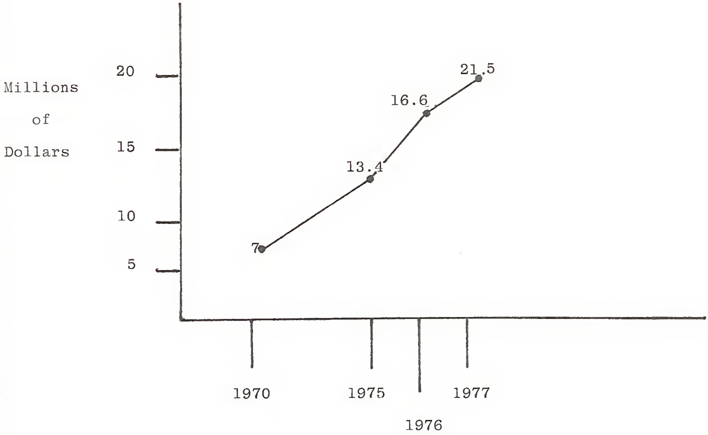

FIGURE 2 - Montana Medicaid's Annual Expenditures for Long Term Care Services for Selected Years.

SOURCE: Estimated from Monthly Statistical Tables prepared by the Bureau of Statistics & Research Department of Social and Rehabilitation Services, State of Montana.

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- PSRO audits of patients currently residing in long term care facilities,
- hospitals jointly administering long term care facilities,
- and increasing concern that Montana may be overbuilding long term care beds.

In July, 1976, the Montana Foundation for Medical Care began screening and classifying long term nursing residents for the State's Social and Rehabilitation Service. The purpose of the contract was to determine the appropriate category of care needed by these persons. Although the findings have not yet been published, it is estimated that between 50 and 70 percent of the residents whose records are reviewed will be downgraded from skilled nursing care to intermediate care. Although the level of care criteria has been changed, the quality and quantity of care has not been affected to date.

Although no data is available, there currently appears to be a shortage of personal care homes, group homes, adult foster care centers and geriatric day care centers. If these facilities are built and become operational, there will be less demand for long term beds.

Because of the substantial increases in Medicaid budget, the Social and Rehabilitation Service (SRS) has begun instituting changes in its reimbursement policies. In May, 1977, it instituted a policy of using Medicare (Title XVIII) funds as first dollar reimbursement.

In many cases, Medicare will finance up to 100 days of extended care for the continuation of necessary medical treatment following discharge after a hospital stay of at least three days. Up to this time, there were few long term care facilities in Montana certified by Medicare. It is speculated that this policy will probably intensify services provided by long term care facilities and, thus, also increase per diem costs. At the same time, it is hoped that this will also reduce the number of "social days" awarded to hospitalized patients because no appropriate facility is immediately available.

In recent years, many small hospitals have developed combination facilities. In this configuration, the hospital and long term care facility are run separately, but have a common administrator and share some support services such as dietary and laundry. Proposed Federal Amendments to the Social Security Act if passed, will allow usage of the swing bed concept in which long term care and actute care beds can be used interchangably as needed. At the present time, Medicare and Medicaid reimbursement policies require that these facilities be operated separately. In sparsely populated rural areas, it appears that combination facilities are a reasonable way to economically provide both acute and long term care services. It also appears that future dependence on this concept however, might increase the costs of long term care.

Another trend in long term care in Montana is a recent concern that the state may be overbuilding long term beds. Until early in 1977, the State Department of Health used a formula to estimate bed need which assured continual growth. In July 1977, they adopted a more restrictive formula, and as of November 14, 1977, they declared a moritorium on future approvals for long term care facilities. This moratorium was in effect until March 14, 1978.

Until alternatives to long term care in Montana can be identified and assessed as to their viability, the Montana Health Systems Agency recommends a reinstitution of the moratorium on long term care bed construction for a one year period. The HSA is planning to address these alternatives within the next year. The HSA will also work with the Department of Social and Rehabilitation Services to examine establishing programs of custodial or personal care in nursing homes.

The Department of Social and Rehabilitation Services is funding, under a contract with the Nursing Home Association, a project utilizing a multi-disciplinary approach at Montana State University to identify and assess the quality standards of care in long term care facilities. During the first year of the contract, a review of the literature available on quality standards will be implemented. The results of this study will be utilized by the HSA if possible, to address long term care at a later date.

It should be recognized that patients occassionally remain at a higher level of care in an acute care setting for a relatively short period of time pending the location of an appropriate care bed elsewhere. The number of patients affected by this practice and the total waiting days accrued by these patients is demonstrated in Table 1.

An examination of the statistics presented in Table 1 shows that a majority of the patients and days spent waiting for placement in a long term care facility occur at the skilled level of care. Approximately 688 patients classified at the skilled level of care spent a total of 5,001 days waiting for placement, which only 112 patients classified at the intermediate level of care spent 760 days waiting for placement in a long term care facility. The Northwestern Subarea had 207 patients at the skilled level of care who spent an average time of 10.0 days waiting for placement, compared to 11.5 days waiting time for patients at the intermediate level of care. Similarly an average of 4.2 days waiting time was spent for patients at the skilled level of care in North Central Montana, with an average of 4.4 days waiting time for those people at the intermediate level of care. Contrarily, in all three other subareas, Southwestern, South Central, and Eastern, more days were spent waiting for placement by patients at the skilled level of care on an average per patient basis than the average time spent by patients at the intermediate level of care. In all subareas, the average time spent waiting for placement in a long term care facility for those patients requiring custodial care only was substantially below the average waiting times accrued for skilled and intermediate care patients.

Several problems prevent the utilization of these statistics as a supplement of bed need formulations and utilization statistics. Some of the problems are weather conditions preventing the transfer of the patient, the level of care required may be greater than the level of care offered by the nursing home, the patient's family may refuse to permit transfer from the hospital and the level of care it can provide if the patient's illness is of a terminal nature, long term care admissions may not be available on weekends thus contributing to an additional two days, and finally, only limited units of oxygen may be available in a long term care facility and the patient may have to wait in the acute care setting until an oxygen unit can be made available. If the swing bed concept were fully implemented, patients could be transferred to a lower level care bed within the acute care setting until the appropriate placement was available. An additional problem in explaining these statistics concerns the classification of patients as skilled, intermediate, or custodial. Medicare does not require any category except skilled, all other patients are classified as custodial care patients. However, many patients classified as custodial under Medicare are recognized as intermediate care patients under the definition of Medicaid.

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SUBAREA	Patient at Skilled Level of Care, but Waiting for Placement CASES	DAYS	Patient at Intermediate Level of Care, but Waiting for Placement CASES	DAYS	Patient at Custodial Level of Care, but Waiting for Placement CASES	DAYS
Northwestern	207	2048	33	378	4	7
North Central	173	723	37	163	27	58
Southwestern	106	579	6	18	5	10
South Central	103	616	22	127	32	66
Eastern	99	1035	14	74	6	8
TOTAL	688	5001	112	760	74	149

TABLE 1 - The Number of Certified "Waiting Days" by Subarea

SOURCE: Montana Foundation for Medical Care, Inc., June 12, 1978.

3.0 Plan For The Future

3.1 Overview

The primary service area for a long term care facility is considered to be the county in which the facility is located. Counties not having a long term care facility are grouped with an adjacent county in accordance with known medical service patterns. This methodology is supported by patient origin studies conducted by the Comprehensive Health Planning Agencies in 1974. These studies demonstrated that a majority of the facilities served the local communities in which they were located. Recent data shows that this practice is continuing today. Approximately 80 percent of the long term care admissions in Montana nursing homes during 1977 originated from the county where the facility is located.

The population cohort primarily served by long term care facilities in Montana is comprised of individuals 65 years of age or older. Again, patient origin studies conducted by the CHP agencies in 1974 indicate that the average age of nursing home residents was between 79 and 81 years old. The average length of stay for nursing home patients was reported to be between 1.9 and 2.8 years.

The number of persons aged 65 years and older is projected to increase 15 percent from 1975 to 1985 as compared to only a 6 percent increase for the entire population of Montana for this period. The Department of Community Affairs estimates that there were approximately 75,586 persons in 1975 aged 65 years old and older. By 1985, the number of elderly is expected to reach 86,645.

3.2 Estimate of Service Need

The criterion of 61 beds per 1,000 population aged 65 years old and older was utilized to estimate the long term care bed need for each county in Montana. This criterion is consistent with national figures which indicate that there were 61.3 beds/1,000 population 65 and over in 1976. (NCHS National Nursing Home Survey). The criterion assumes that only those persons needing medical care will occupy the beds. The bed need formula may be expressed as follows:

Bed Need= .061 (1985 population 65 years of age and older)

Persons needing only custodial care are not included as part of the 61 beds/1,000 elderly bed need formula. In July, 1976, the Montana Foundation for Medical Care initiated a program for the Montana Department of Social and Rehabilitation Services to screen and classify long term care residents. More recently, social workers employed by the counties and under contract with SRS and the Foundation for Medical Care have been involved with pre-assessment screening.

Tables 2 through 6 summarize the bed need estimates by subarea and by county through 1985. Based on this table, only three service areas appear to need 40 or more additional long term care beds by 1985. They are:

- Deer Lodge	65 beds
- Yellowstone	90 beds
- Missoula	54 beds

It appears that 40 beds is the smallest size that independent long term care facilities can be and still be financially viable.

The Foundation may find that some long term care facility residents do not need the types of nursing care provided in these institutions. Less restrictive accommodations may be more appropirate. Therefore, before any additional construction of long term care facilities is approved, it is recommended that the availability of alternative sources of care be carefully investigated. Alternatives to long term care as addressed in this component include retirement homes, senior citizen apartments, personal care homes, group homes, adult foster care programs, geriatric day care centers and home health care agencies. These less restrictive types of health care programs should be developed to the maximum extent where possible.

Three counties appear to need between 15 and 40 beds by 1985. They are:

- Ravalli	37 beds
- Musselshell	22 beds
- Rosebud/Treasure	20 beds

Because free standing facilities of less than 40 beds are probably impractical and uneconomical, preference should be given to applicants in these areas wishing to expand or develop combination hospital/long-term care facilities. Again, the avail-

County	1985 Population 65 Years of Age and Older	61 Beds per 1,000 1985 Population 65 Years of Age and Older	Number of Licensed Beds, 1978	Deficit (Surplus)
Flathead	5,623	343	404 1)	(61)
Lake	2,512	153	185 2)	(32)
Lincoln	1,562	95	103	(8)
Mineral	306	19	20	(1)
Missoula	6,157	376	322 3)	54
Ravalli	3,143	192	155	37
Sanders	1,158	71	84 4)	(13)
TOTAL	20,461	1,249	1,273	(24)

1) Includes 50 beds opened September, 1977, at Immanuel Lutheran Home, Kalispell
2) Includes 40 beds under construction and not in operation during 1977 at St. Luke Community Hospital, Ronan.
3) Includes 58 beds under construction at Community Nursing Home, Missoula. An additional 20 rehabilitation beds which are not included in this statistic have been approved and are expected to be operational by 1985.
4) Includes 16 beds opened, October, 1977 at Hop Springs Convelcscent Inc., Hot Springs.

TABLE 2 - Estimated Long-Term Care Bed Need in 1985 for the Northwest Subarea

County	1985 Population 65 Years of Age and Older	61 Beds per 1,000 1985 Population 65 Years of Age and Older	Number of Licensed Beds, 1978	Deficit (Surplus)
Blaine	730	45	107 1)	(62)
Cascade	7,701	470	527	(57)
Chouteau	781	48	51	(3)
Glacier	1,147	70	88	(18)
Hill	1,941	118	120	(2)
Liberty	271	17	40	(23)
Pondera	813	50	63	(13)
Teton	934	57	65 2)	(8)
Toole	635	39	32	7
TOTAL	14,953	914	1,093	(179)

1) Includes 40 beds under construction at Sweet Memorial Nursing Home, Chinook.
2) Includes 24 beds under construction at Teton Medical Center, Choteau, opened October 3, 1977.

TABLE 3 - Estimated Long-Term Care Bed Need in 1985 for the North Central Subarea

County	1985 Population 65 Years of Age and Older	61 Beds per 1,000 1985 Population 65 Years of Age and Older	Number of Licensed Beds, 1978	Deficit (Surplus)
Beaverhead	944	58	108	(50)
Broadwater	368	22	18	4
Deer Lodge	2,175	133	68	65
Gallatin	3,679	224	219	5
Granite	401	24	21 1)	3
Jefferson	668	41	67 2)	(26)
Lewis & Clark	4,450	271	283	(12)
Madison	839	51	79	(28)
Meagher	288	18	31	(13)
Park	1,887	115	125	(10)
Powell	732	45	60	(15)
Silver Bow	4,986	304	403	(99)
TOTAL	21,417	1,306	1,482	(176)

1) 21 beds are under construction at Granite County Hospital and Nursing Home
2) The long term care beds in Jefferson County are located in Clancy and primarily are used by residents of Lewis & Clark County.

TABLE 4 - Estimated Long Term Care Bed Need in 1985 for the Southwest Subarea

County	1985 Population 65 Years of Age and Older	61 Beds per 1,000 1985 Population 65 Years of Age and Older	Number of Licensed Beds, 1978	Deficit (Surplus)
Big Horn	891	54	55	(1)
Carbon	1,411	86	104	(18)
Fergus/Petroleum/ Judith Basin	2,561	156	167	(11)
Musselshell	654	40	18	22
Stillwater	795	48	81	(33)
Sweet Grass	479	29	48	(19)
Wheatland/Golden Valley	507	31	33	(2)
Yellowstone	10,602	647	557	90
TOTAL	17,900	1,091	1,063	28

TABLE 5 - Estimated Long-Term Care Bed Need in 1985 for the South Central Subarea

County	1985 Population 65 Years of Age and Older	61 Beds per 1,000 1985 Population 65 Years of Age and Older	Number of Licensed Beds, 1978	Deficit (Surplus)
Carter/Fallon	731	45	53	(8)
Custer/Powder River	2,005	122	228	(106)
Daniels	476	29	55	(26)
Dawson/Wibaux	1,478	90	115	(25)
Garfield	221	13	12	1
McCone	328	20	40	(20)
Phillips	741	45	35	10
Prairie	331	20	14	6
Richland	1,416	86	85	1
Roosevelt	1,144	70	122 1)	(52)
Rosebud/Treausre	1,097	67	47	20
Sheridan	805	49	37	12
Valley	1,141	70	96	(26)
TOTAL	11,914	726	939	(213)

1) Includes 40 beds under construction at Roosevelt Memorial Hospital, Culbertson.

TABLE 6 - Estimated Long-Term Care Bed Need in 1985 for the Eastern Subarea

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ability and feasibility of developing alternatives to long-term care facilities should be carefully examined before any further construction is approved by reviewing agencies.

A number of counties are beginning to show a surplus of nursing home beds. Many appear to be the result of new construction or Certificate of Need approvals over the last few years. However, the following areas appear to have a surplus of over 20 long-term care beds:

- Flathead	61 beds
- Beaverhead	50 beds
- Jefferson	26 beds
- Madison	28 beds
- Silver Bow	99 beds
- Stillwater	33 beds
- Custer/Powder River	106 beds
- Daniels	26 beds
- Roosevelt	52 beds
- Blaine	62 beds
- Liberty	23 beds
- Lake	32 beds
- Cascade	57 beds
- Dawson/Wibaux	25 beds
- McCone	20 beds
- Valley	26 beds

It should be emphasized that the bed need estimates do not include personal care beds; those beds intended to be used for those individuals requiring only minimal medical attention. Long-term care facilities could, perhaps, allocate some of the bed surplus to personal care patients. This projected bed need will be based on the criterion of 15 beds per 1,000 elderly in each service area. These personal care beds will be addressed in a subsequent Health Systems Plan component.

REFERENCES

1) Montana Licensing Law & Regulations for Long Term Care Facilities. Montana State Department of Health, Helena, Montana. Revised, November 1969, March 1970, May 1971.

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3) Reference Manual for Project Review Standards and Criteria, Tulane University School of Public Health and Tropical Medicine, January 7, 1974.

4) Interagency Task Force: Massachusetts Department of Public Health and the HSAS, Proposed Interim Standards and Criteria for the Allocation of Long Term Beds, November 1, 1976.

5) Bernard Ries & J. B. Christenson, Nursing Home Costs in Montana: Analysis & Policy Applications, Unpublished Staff Paper in Economics; Agriculture Economics and Economic Department, Montana State University, Bozeman.

6) U. S. Department of Health, Education and Welfare, op. cit.

APPENDIX A

ESTIMATED COST (EXPENSES) PER DAY FOR LONG TERM CARE FACILITIES IN MONTANA FOR 1975, 1976 and 1977

	1975			1976			1977		
SUBAREA	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY
ALL LONG TERM CARE FACILITIES									
Northwestern	4,278,019	263,116	16.26	5,227,179	286,369	18.25	6,746,276	352,383	19.14
North Central	5,593,537	276,129	20.26	6,336,099	273,874	23.14	8,765,440	367,227	23.87
Southwestern	5,230,394	299,944	17.44	6,293,865	347,535	18.11	9,269,348	433,265	21.39
South Central	3,706,197	229,448	16.15	4,068,181	217,143	18.74	7,011,459	345,768	20.28
Eastern	2,402,273	135,999	17.66	3,811,100	222,841	17.10	5,265,840	254,663	20.68
TOTALS	21,210,420	1,204,636	17.60	25,735,424	1,347,762	19.09	37,058,363	1,753,306	21.14
HOSPITAL RELATED FACILITIES									
Northwestern	359,635	10,651	33.76	763,679	34,071	22.41	812,634	31,214	26.03
North Central	985,614	45,977	21.44	1,247,828	44,074	28.31	2,216,107	77,074	28.75
Southwestern	906,449	45,387	19.97	858,550	59,734	14.37	2,772,400	87,408	---
South Central	626,065	35,789	17.49	1,016,770	49,169	20.68	1,488,286	48,853	30.46
Eastern	1,520,871	86,975	17.49	2,075,627	78,715	26.37	2,825,982	96,190	29.38
TOTALS	4,398,634	224,779	19.56	5,962,454	265,763	22.44	10,115,409	340,739	26.69
INDEPENDENT FACILITIES									
Northwestern	3,918,384	252,465	15.52	4,463,500	252,298	17.69	5,933,642	321,169	18.48
North Central	4,607,923	230,152	20.02	5,088,271	229,800	22.14	6,549,333	290,153	22.57
Southwestern	4,323,945	254,557	16.99	5,434,315	387,801	18.88	6,496,948	345,857	18.79
South Central	3,080,132	193,659	15.90	3,051,411	167,974	18.17	5,523,173	296,915	18.60
Eastern	881,402	49,024	17.98	1,735,473	144,126	12.04	2,439,858	158,473	15.40
TOTALS	17,791,643	979,857	18.15	19,772,970	1,121,999	17.62	26,942,954	1,412,567	19.07

TABLE A-1 - Estimated Cost (Expense) Per Patient Day in Montana Long Term Care Facilities for 1975, 1976 and 1977.

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	1975			1976			1977		
COUNTY & FACILITY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY
LINCOLN									
Libby Conv. Center	287,657	20,031	14.36	---	---	---	391,787	22,404	17.49
FLATHEAD									
Flathead Co. N.H.	435,919	22,657	19.24	476,597	23,056	20.67	527,564	23,854	22.1[illegible]
Immanual Lutheran H.	397,379	31,915	12.45	475,504	32,386	14.68	527,699	32,387	16.3[illegible]
Colonial Manor N.H.	---	---	---	418,740	20,494	20.43	418,740	20,809	20.12
North Valley Hosp. & Ext. Care Ctr.*	236,907	7,056	33.57	---	---	---	554,154	19,741	28.07
Big Fork Convalescent	---	---	---	408,088	23,770	17.17	425,794	27,141	15.69
SANDERS									
Hot Springs Conv.	303,538	19,789	15.34	323,309	20,153	16.04	---	---	---
Clark Fork Valley*	122,728	3,595	34.14	117,862	4,009	29.40	86,487	4,359	19.84
LAKE									
St. Joseph Conv. Ctr.	556,295	35,010	15.89	592,006	32,925	17.98	656,167	37,132	17.67
Happy Acres R. H.	49,871	3,339	14.94	46,598	3,426	13.60	57,593	3,174	18.15
West Side Rest Home	70,275	8,259	17.00	114,963	8,365	13.74	102,154	8,265	12.36
MINERAL									
Mineral Co. N.H.*	---	---	---	237,729	6,292	37.78	171,993	7,114	24.18
RAVALLI									
Valley View Estates, Inc.	512,917	34,907	14.69	576,485	35,097	16.43	675,794	34,793	19.42
North Valley N.H.	359,197	20,279	17.71	399,561	20,747	19.26	34,978	20,644	20.34
MISSOULA									
Hillside Manor	636,336	38,040	16.73	704,818	37,379	18.86	840,000	37,201	22.58
Royal Manor	309,000	18,239	16.94	334,919	18,270	18.33	411,240	16,561	24.83
Wayside	---	---	---	---	---	---	336,267	15,298	21.98
Community	---	---	---	---	---	---	527,865	21,506	24.55
TOTALS:	4,278,019	263,116	16.26	5,227,179	286,369	18.25	6,746,276	352,383	19.14

* Combination Facilities

TABLE A-2 - Estimated Cost (Expense) Per Patient Day in Northwestern Montana Long Term Care Facilities (1975, 1976 & 1977)

COUNTY & FACILITY	1975 COSTS	1975 PATIENT DAYS	1975 COST/DAY	1976 COSTS	1976 PATIENT DAYS	1976 COST/DAY	1977 COSTS	1977 PATIENT DAYS	1977 COST/DAY
GLACIER									
Memorial N.H.*	---	---	---	---	---	---	318,851	13,789	23.12
Blackfeet N.H.	---	---	---	---	---	---	407,000	15,972	25.48
TOOLE									
Toole Co. N.H.*	---	---	---	---	---	---	337,499	10,759	31.37
PONDERA									
Pondera Pioneer N.H.	---	---	---	---	---	---	442,918	21,711	20.40
TETON									
Teton Nursing Home	273,705	14,788	18.51	305,383	14,867	20.53	338,102	14,814	22.82
CHOUTEAU									
Sande Conv. Home	127,433	10,076	12.65	---	---	---	144,361	10,255	14.08
Chouteau Co. Dist. Hosp.	---	---	---	---	---	---	218,636	7,972	27.43
CASCADE									
Cascade Co. Conv. N.H.	2,081,170	80,533	25.84	2,209,966	80,791	27.35	2,403,164	80,715	29.77
McAuley N.H.	207,217	14,417	14.37	239,364	15,024	15.93	262,019	14,515	18.05
Deaconess Skilled N.C.*	648,483	31,318	20.71	871,954	30,085	28.98	943,101	30,556	30.87
Park Place N.H.	869,994	41,531	20.95	1,134,594	49,153	23.08	1,085,691	55,681	33.43 1)
LIBERTY									
Liberty Co. N.H.*	337,131	14,659	22.99	375,874	13,989	26.87	398,020	13,998	28.43
BLAINE									
Sweet Memorial N.H.	181,647	11,852	15.33	240,524	12,066	19.93	270,465	12.072	22.40
Harlem Rest Home	251,560	23,591	10.66	277,443	23,303	11.91	302,819	23,100	13.11
HILL									
Hi-Line Home	103,634	6,341	16.34	---	---	---	108,470	6,308	17.20
Lutheran Home of the Good Shepherd	511,563	27,023	18.93	680,997	34,596	19.68	784,324	35,010	22.40
TOTALS:	5,593,537	276,129	20.26	6,336,099	273,874	23.14	8,765,440	367,227	23.87

*Combination
Facilities

1) Based on data for 7 months.

TABLE A-3 - Estimated Cost (Expense) Per
Pateint Day in North Central
Montana Long Term Care Facilities
(1975, 1976 & 1977)

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COUNTY & FACILITY	1975			1976			1977		
	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY
BEAVERHEAD									
Parkview Acres Conv. Hosp. & N.H., Inc.	287,319	18,137	15.84	342,580	18,655	18.36	383,430	19,500	19.66
MADISON									
Madison Co. N.H.	221,127	14,090	15.69	248,868	14,157	17.58	260,211	14,097	18.46
GALLATIN									
Bozeman Dea. Hosp.*	393,261	20,632	19.06	---	---	---	708,520	21,491	32.97
Bozeman Conv. Ctr.	---	---	---	622,290	24,784	25.11	639,227	26,170	24.43
Callatin Co. Rest Home	284,446	20,213	14.07	311,876	19,436	16.05	502,680	19,964	25.18
Hillcrest Health Ctr.	---	---	---	40,630	2,312	17.57	43,290	2,280	18.99
JEFFERSON									
Hillbrook N.H.	340,886	20,307	16.79	423,828	24,114	17.58	540,000	24,034	24.51
LEWIS & CLARK									
Helena N.H. & Health Facilities, Inc.	357,712	17,163	20.84	229,945	14,223	16.16	541,181	20,930	25.86
Cooney Conv. Home	472,273	20,823	22.68	530,640	20,495	25.89	595,254	20,768	28.66
Parkside Manor	252,122	19,688	12.81	333,934	18,171	18.38	---	---	---
Western Care N.H.	643,000	35,040	18.35	684,794	38,780	17.66	738,350	37,960	19.45
BROADWATER									
Broadwater Co. R.H.	111,116	6,324	17.57	120,495	6,275	19.20	132,406	6,149	21.53
MEAGHER									
Mountain Mem. N.H.*	---	---	---	---	---	---	287,438	5,186	55.43
POWELL									
Colonial Mannr of Deer Lodge	349,790	21,074	16.36	295,610	21,052	14.04	39,155	21,800	21.55
DEER LODGE									
Community N.H. of Anaconda	513,188	24,755	20.73	565,420	24,224	23.34	650,351	25,180	25.83
SILVER BOW									
Crest N.H.	573,520	35,012	16.38	662,338	33,525	19.76	694,937	33,999	20.44
Butte Park Royal Conv. Center	---	---	---	---	---	---	1,184,844	61,398	19.30
Silver Bow General N.H.*	---	---	---	293,130	35,510	14.15	1,126,091	35,551	31.68
PARK									
Livingston Conv. Ctr.	430,634	26,686	16.13	495,487	31,822	15.57	201,983	36,808	21.95
TOTALS:	5,230,394	299,944	17.44	6,292,865	347,535	18.11	9,269,348	433,265	21.39

*Combination
Facilities

TABLE A-4 - Estimated Cost (Expense) Per Patient Day in Southwestern Montana Long Term Care Facilities (1975, 1976 & 1977)

	1975			1976			1977		
COUNTY & FACILITY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY
FERGUS									
Valle Vista Manor	537,337	35,036	15.34	595,836	34,874	17.09	748,671	34,984	21.40
Central Mt. Hosp. N.H.*	107,363	15,174	7.83	332,606	14,364	23.16	351,986	14,455	14.39
WHEATLAND									
Wheatland Mem. N.H.*	170,441	10,813	15.76	179,246	10,997	16.30	195,415	11,233	17.40
MUSSELSHELL									
Roundup Mem. N.H.*	107,507	5,549	19.37	119,057	5,564	21.40	174,649	5,892	29.64
STILLWATER									
Stillwater Conv. Ctr.	467,500	28,297	16.52	530,000	28,946	18.31	569,090	28,482	19.98
SWEETGRASS									
Pioneer Nursing Home	241,963	17,180	14.08	251,480	17,182	14.64	271,051	17,183	15.77
CARBON									
Carbon Co. Mem. N.H.*	129,044	7,809	16.53	138,469	6,896	20.08	421,115	5,576	24.00
Carbon Co. Health Care	---	---	---	---	---	---	456,000	20,177	22.60
BIG HORN									
Big Horn Co. Mem. N.H.*	219,073	11,618	18.86	247,392	11,348	21.80	345,121	11,697	29.51
Mtn. View Rest Haven	---	---	---	124,717	7,534	16.55	126,400	7,300	17.32
YELLOWSTONE									
Glendeen N.H.	201,864	12,769	15.81	214,309	13,013	16.47	227,337	12,996	17.49
St. John's Lutheran Home	305,815	19,195	15.93	---	---	---	1,250,010	57,108	21.89
Valley N.H.	621,065	35,323	17.58	683,007	35,890	19.03	64,805	35,189	18.42
Western Manor N.H.	---	---	---	---	---	---	1,128,366	53,220	21.20
Yellowstone Co. N.H.	452,137	20,647	21.90	496,290	20,633	24.05	519,037	20,535	25.28
Laurel N.H.	145,088	10,038	14.45	155,772	9,902	15.73	162,406	9,741	16.67
TOTALS:	3,706,197	229,448	16.15	4,068,181	217,143	18.74	7,011,459	345,768	20.28

*Combination
Facilities

TABLE A-5 - Estimated Cost (Expense) Per
Patient Day in South Central
Montana Long Term Care Facilities
(1975, 1976 & 1977)

[illegible] COMMENT ONLY

COUNTY & FACILITY	1975			1976			1977		
	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY	COSTS	PATIENT DAYS	COST/DAY
VALLEY									
Valley View N.H.	---	---	---	544,902	26,788	20.34	501,045	30,146	16.62
Frances Mahon Dea. Hosp.	---	---	---	---	---	---	22,405	374	59.91
OANIELS									
Oaniels Mem. N.H.*	191,193	10,676	17.91	201,752	9,894	20.39	403,456	10,663	37.84
SHERIOAN									
Sheridan Mem. N.H.*	213,950	12,109	17.67	250,286	12,403	20.18	271,912	12,523	21.71
ROOSEVELT									
Community Hosp. N.H.*	---	---	---	204,953	6,936	29.54	203,017	6,162	32.95
Faith Lutheran Ret. Home	---	---	---	352,743	21.715	16.24	439,325	21,679	20.27
GARFIELO									
Garfield Co. Hospital*	177,744	3,865	45.99	---	---	---	127,033	2,626	48.38
RICHLANO									
Richland Homes	---	---	---	480,675	29,930	16.06	534,598	30,505	17.53
OAWSON									
Glendive Comm. N.H.*	293,785	17,811	16.49	397,222	18,579	21.38	508,903	21,273	23.92
ROSEBUD									
Rosebud Comm. N.H.*	---	---	---	---	---	---	776,486	14,504	21.48
FALLON									
Fallon Memorial N.H.*	162,825	10,979	14.83	210,950	10,688	19.74	229,948	9,768	23.54
CARTER									
Oahl Memorial N.H.*	129,872	5,595	23.21	---	---	---	143,163	3,642	25.20
CUSTER									
Custer Co. Rest Home	493,521	35,249	14.00	527,170	36,499	14.44	599,897	39,065	15.36
Friendship Villa of Miles City, Inc.	380,525	21,734	17.51	40,156	23,471	20.53	38,389	24,255	18.99
POWDER RIVER									
Powder River N.H.	---	---	---	---	---	---	53,000	220	(open 62/days
PRAIRIE									
Prairie Comm. N.H.*	112,942	4,350	25.96	178,868	4,359	---	112,785	4,199	26.86
MC CONE									
Mc Cone County N.H.	---	---	---	---	---	---	65,649	1,036	63.37
WIBAUX									
Wibaux County N.H.*	95,069	2,013	47.23	237,731	9,315	25.52	26,874	10,456	30.85
PHILLIPS									
Malta Nursing Home	150,847	11,618	12.98	183,692	12,264	14.98	207,955	11,567	17.98
Malta Hospital	---	---	---	---	---	---	---	---	---
TOTALS:	2,402,273	135,999	17.66	3,811,100	222,841	17.10	5,265,840	254,663	20.68

*Combination Facilities

TABLE A-6 - Estimated Cost (Expense) Per Patient Day in Eastern Montana for Long Term Care Facilities (1975, 1976 & 1977)

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4.7

SUMMARY

HOME HEALTH CARE

This provision of health services and supportive services is to patients in their own homes or at ambulatory settings for the purpose of preventing disease and promoting, maintaining or restoring health. Advantages over more restrictive environments are of a psychological nature, along with cost savings documented by the U.S. General Accounting Office.

Services other than nursing consist of: Nutritional Guidance, Occupational Therapy, Physical Therapy, Speech Therapy, Respiratory Therapy, Medical Social Services and Homemaker Services.

The age group predominatly served is 65 years and older.

Funding is a major problem experienced by most home health agencies in Montana. Funding lags are created by third-party insurers or coverage is non-existent.

Distances between agencies and patients have created accessibility complications.

Estimates have been made showing 12 patients per 1,000 population, would use home health care services if they were available.

The MHSA believes home health care should be available and easily accessible to all Montana citizens. To remain financially viable, a case load of at least 150 active clients should be a planning goal of each agency.

Three areas remain unserved. The MHSA would encourage the establishment of agencies in Lewistown, Glasgow and the Cutbank, Shelby areas by 1982.

The expansion of four existing areas and the monitoring of agencies delivering services in the same geographical areas to insure minimal duplication are priorities.

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September 15, 1978

HOME HEALTH CARE

GOALS, OBJECTIVES, & RECOMMENDED REVIEW CRITERIA

GOAL:

Home Health Care should be available and easily accessible to all Montanans while at the same time minimizing duplication of service areas. As a planning goal each agency should be able to maintain an active case load of at least 150 clients to remain financially viable.

OBJECTIVES:

1. By 1982, encourage the establishment of home health agencies, if they can be shown to be financially feasible, in three different areas which are currently unserved. These areas are:
   - Lewistown Area (Planning District 6 in South Central Montana)
   - Glasgow and Wolf Point Areas (Planning District 1 in Eastern Montana)
   - Cutbank, Shelby, Conrad and Choteau Areas (Planning District 5 in North Central Montana)
2. By 1985, encourage the expansion of four existing agencies into geographical areas currently unserved. In addition, encourage small agencies to expand the scope of services where financially feasible.
3. By 1983, monitor the activities of those agencies delivering services in the same geographical areas to insure minimal duplication.

The primary means of implementing these strategies is through the Certificate of Need and appropriateness review process. However, before providers will be encouraged to undertake such a project, a number of activities need to be performed. These include:

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- Encouraging third party payors to expand coverage of home health services (within limits to avoid excessive services.)
- Developing educational programs to make the general public more aware of the content of, availability of, and need for home health services.
- Developing programs to make physicians, nursing home personnel, and discharge planning personnel in hospitals more aware of the potential advantages of home health care.
- Encouraging the continuance of federal grant programs to provide start up monies and expansion funds for home health agencies.
- Initiating a program to provide the administrators of home health agencies with technical assistance in the area of fiscal management.

RECOMMENDED REVIEW CRITERIA:

1. Each new proposed home health agency or one expanding services should show that the agency is financially viable and capable of becoming self supporting within three years after initiation of these services.
2. All new agencies must guarantee that it will serve all segments of the population and not intentionally restrict services to any specific group.
3. All agencies proposing to initiate or expand services should show support from referral sources (hospitals, nursing homes, physicians and health departments in the communities to be served.)
4. All new home health care agencies should agree to participate in the Medicare program and be certified by Medicare.
5. Any agency that wishes to provide services within the geographic area of an existing agency should prove that it will not destroy or endanger the financial stability of the existing agency or increase patient cost.
6. The availability of manpower such as community nurses, physical therapists, speech therapists, occupational therapists, etc. be addressed in all certificate of need applications, including those for development of new agencies, expansion of geographic areas or of the services provided.

1.0 Background

Home Health care is the provision of health services and supportive services to patients in their own homes or at ambulatory settings for the purpose of preventing disease and promoting, maintaining or restoring health or minimizing the effects of illness or disability.1)

Home care can be used both as an adjunct to, or as a substitute for, the services offered in more restrictive settings. For many patients, it offers valuable psychological benefits by keeping them in a familiar environment, by providing continuing dignity, and by maintaining supportive family relationships.2) The overall cost of these services are often less than that delivered in other settings. The U.S. General Accounting Office recently reviewed 20 publications which compared the costs of home health care to those of alternative services. Nineteen of the 20 showed that home health care can be less expensive under some circumstances than alternative institutional care. Table 1 presents the results of two studies comparing hospitalization with home health costs.

Program	Number of Home Care Patients	Average Number of Hospital Days Saved per Patient	Total Number of Hospital Days Saved	Total Net Savings	Total Savings per Patient
Blue Cross of Greater Philadelphia Home Care Program	3,940	13	51,220	$1.3 Million	$330.
Rochester (New York) Home Care Association Program	1,500	21	31,500	$1.0 Million	$667.

TABLE 1 - Results of Two Studies Comparing the Costs of Home Health Care With Hospital Inpatient Days

Source: American Medical Association "Statement on Home Health Care" Chicago, Illinois, 1973

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In Montana, all agencies delivering skilled nursing services and one additional therapeutic service in the home are required to be licensed. As a result of this legislation, all new agencies and those existing agencies wishing to expand either their service area or their scope of services must apply for a Certificate of Need from the State Health Planning and Development Agency. The purpose of these guidelines is to develop MHSA policy toward Home Health Care and to establish review criteria for the future development of these agencies.

Besides nursing services, some of the other services commonly delivered by home health agencies include:

- Home Health Aide and Homemaker Services
- Nutritional Guidance
- Occupational Therapy
- Physical Therapy
- Speech Therapy
- Medical Social Services
- Respiratory Therapy

Agencies providing home health care can be based in hospitals, long-term care facilities, public health departments, or they can be profit or non-profit, independent organizations. There are a variety of organizational arrangements in which different services are provided. First, the agency may provide the service with its own staff. Most agencies have the capability of delivering at least skilled nursing care and homemaker services. Second, some services such as physical, occupational and speech therapy may be provided under a contract with another provider. Finally, because some services such as barber, cosmetology, pastoral and transportation services are not reimbursed by third party payers, the agency may arrange for them to be available to their clients upon request.

The age group predominatly served by Home Health Care agencies is those persons 65 years of age and older. In one national study of 12 Home Health agencies, the median age of the clients served was 69; about 63 percent were 65 years and over.[3)] However, home care is also provided to developmentally disabled, the chronically ill and any others requiring this type of care.

In Montana, about 62 percent of the visits made by Home Health Agencies are to Medicare patients and about 57 percent of their revenue generated is from the Medicare program. For this reason, Medicare participation is essential for most home health agencies to survive. To be eligible for Medicare reimbursement, each agency must also be certified by the Medicare program. In Montana, the Medicare certification requirements and the State's Licensing requirements are the same.

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2.0 Description of the Present Situation

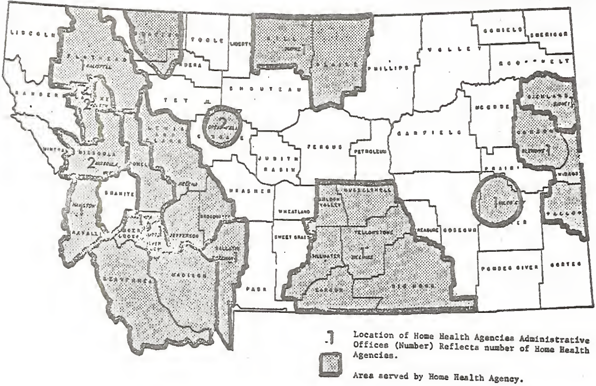
Figure 1 shows the location of licensed home health agencies and the areas currently being served in Montana. At the present time, there are 19 licensed home health agencies which provide services or have Certificate of Need approval to deliver services. Four agencies have been approved in the last year, reflecting an increased interest in Montana to provide the service.

The types of organizations sponsoring home health agencies in Montana appear to be almost equally split among Public Health Departments (8), Hospitals (5), and independent, non-profit corporations (6). Two of the hospital based agencies (Montana Deaconess and Columbus) and the Missoula Rehabilitation Center primarily serve their parent organization's former patients. Similarily, the Blackfeet Tribal Home Health Agency primarily serves Indians on the Blackfeet Reservation.

Five of the home health agencies serve multi-county areas. They are:

- Yellowstone City-County Health Department - serving Yellowstone, Big Horn, Carbon, Stillwater, Musselshell and Golden Valley Counties.
- Westmont Home Health Care, Inc. (Helena) - serving Lewis and Clark, Jefferson and Broadwater Counties.
- Area V Home Health Agency (Anaconda) - serving Deer Lodge, Powell, Beaverhead and Madison Counties.
- Northern Montana Home Health Agency (Havre)- serving Hill & Blaine Counties.
- Badlands Home Health Agency (Glendive) - serving Dawson, Wibaux and Fallon Counties.

Table 2 indicates the types of services offered by each agency. As required by their license, all agencies deliver skilled nursing care. All agencies also have some home health aide-homemaker capability as well. The larger agencies also offer physical therapy and speech therapy services as well. The other services vary from agency to agency, depending upon the needs of the patients, the local resources available, and whether or not they are reimbursable.



1 Location of Home Health Agencies Administrative Offices (Number) Reflects number of Home Health Agencies.

▨ Area served by Home Health Agency.

Figure 1 - Location and Catchment Areas of Home Health Agencies in Montana

	Nursing	Home Health Aide-Homemaker	Physical Therapy	Occupational Therapy	Speech Therapy	Medical Social Services	Nutritional Counseling	Respiratory Therapy	Pharmacy Services	Lab Services	X-ray Services	Equipment and Supplies	Pastoral Services
Northwestern													
Ravalli County Public Health Nursing Service	x	x	x		x								
Missoula City-County Health Department (HHA)	x	x	x	x	x								
Missoula Rehabilitation Center 1)	x		x	x	x	x	x						
Flathead County Home Health Agency	x	x	x	x	x		x						
St. Joseph Home Health Care Agency	x	x	x	x		x	x	x	x	x	x	x	
Lake County Home Health Agency	x	x											
Mineral County Home Health Agency	x	x	x	x	x								
North Central													
Montana Deaconess Medical Center Home Health Agency	x	x	x	x	x	x	x	x	x	x		x	
Columbus Hospital Home Health Agency	x	x	x		x	x	x	x	x	x		x	
Northern Montana Hospital (HHA)	x	x	x			x		x		x			
Blackfeet Tribal Home Health Service	x	x	x		x	x				x		x	
Southwestern													
Area V Home Health Agency	x	x	x				x					x	
City-County Home Health Agency Health Service (Butte)	x	x	x		x	x							
West-Mont Home Health Care, Inc.	x	x	x	x	x	x	x	x				x	
Gallatin County Health Department	x	x					x		x	x		x	x
South Central													
Yellowstone City-County Health Visiting Nurse Service	x	x	x	x	x	x	x					x	
Eastern													
Nursing Care In The Home	x	x											
Holy Rosary Hospital Home Health Service	x	x				x	x	x	x				x
Badlands Home Health Agency	x	x	x		x	x	x	x					

1) [illegible] psychological and audiological
[illegible]

[illegible] offered [illegible] approved
Home Health Agencies [illegible]

[illegible] by [illegible]
[illegible] of Hospitals & Medical Facilities, Montana State Department of
Environmental [illegible] and personal communication with selected administrators

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Table 3 presents 1976 utilization figures for the agencies in operation at that time. The number of visits varies from patient to patient depending on their need. On the average, each patient receives about 26 visits a year.

A national study of 12 Home Health Agencies conducted in cooperation with the National League of Nursing indicated that these agencies experienced 16 visits per case.4) Broken down by category, the number of visits per patient was:

Visits per Patient

	National League of Nursing Study (1974)	Montana Home Health Agencies
Skilled Nursing	10.85	14.8
Home Health Aide	4.25	8.2
Physical Therapy	.61	3.0
Speech Therapy	.04	0.2
Occupational Therapy	.03	0.1
Medical Social Worker	.02	0.1
Other	.09	-
	15.89	26.4

Table 3 also shows the heavy dependence of the Home Health Agencies upon Medicare reimbursement. With the exception of one agency, over 50 percent of the visits made are to Medicare recipients. At the present time, all Home Health Agencies, with the exception of Gallatin County, are participating in the Medicare program.

With respect to budgets and operating costs, the 1976 Medicare Cost Reports show the following statistics:

- Salaries constitute between 73 and 78 percent of all operating costs.
- Transportation constitutes between 1.3 and 9.5 percent of all operating costs. (This does not include the staff time spent traveling).

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Subarea and Home Health Agency	Location	Number Patients Served	Total Number Patient Visits	Average # Visits per Patients	% Medicare Visits
Northwestern					
Ravalli Co. Public Health	Hamilton	71	1144	16.1	58.7%
Missoula City-Co. Health Dept.	Missoula	92	2171	17.2	61.1%
Flathead Co. HHA	Kalispell	127	2179	24.8	64.4%
St. Joseph HH Care Agency	Polson	--	--	--	--
Lake Co. HHA	Polson	--	--	--	--
Missoula Rehab Center	Missoula	--	--	--	--
Mineral County HHA	Superior	--	--	--	--
North Central					
Montana Deaconess Medical Center HHA	Great Falls	N/A	4624	N/A	60.9%
Columbus Hospital HHA	Great Falls	N/A	1825	N/A	93.2%
Northern Montana Hosp. (HHA)	Havre	--	--	--	--
Blackfeet Tribal HH Service	Browning	--	--	--	--
Southwestern					
Area V HHA	Anaconda	--	--	--	--
City-Co. HH Service	Butte	383	9625	25.1	59.7%
West-Mont HH Care, Inc.	Helena	513	16492	32.1	73.0%
Gallatin Co. Health Dept.	Bozeman	--	--	--	--
South Central					
Yellowstone City-Co. Health Dept. Visiting Nurse Service	Billings	873[1]	9916[1]	11.3[1]	50.3%[2]
Eastern					
Nursing Care in the Home	Sidney	N/A	4627	N/A	43.8%
Holy Rosary Hospital HH Serv.	Miles City	--	--	--	--
Badlands HHA	Glendive	--	--	--	--

[1] Based upon statistics reported in an A-95 application for expansion of Home Health Services. Statistics reflect the period June 30, 1976 through July 1, 1977.

[2] Based upon billed services July 1, 1976 through June 30, 1977.

TABLE 3 - 1976 Utilization Statistics for Home Health Agencies in Montana.

Source: 1976 Medicare Cost Reports.

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Funding is a major problem experienced by most home health agencies in Montana. Because of Medicare and Medicaid restrictions and similar restrictions on reimbursement from other third-party payors, many home health agencies have funding lags for reimbursement, or carry patients for whom they will receive no reimbursement, unless the patient can pay for the service himself. In addition, many third-party insurers in Montana do not offer home health coverage. Blue Cross, for example, is the Medicare fiscal intermediary but does not provide this coverage.

In most cases, home health agencies must seek extra funding in addition to the reimbursement they receive from patients and insurors. Some receive partial funding from the counties they serve, from the hospitals in which they are based, or from private donations. Usually these funding sources are unstable. It has been suggested that some agency provide fiscal management and consultation services to beginning home health agencies.

Another problem home health agencies sometimes face is obtaining crucial physician support and referrals. Sometimes doctors are unaware of the program or are unwilling to participate in it. It seems physician education programs might be warranted. At the same time, many of the prospective patients appear to associate home health services with welfare services. Again, it seems that educational efforts are needed to inform the public about home health care and what it is.

3.0 Plan for the Future Development of Home Health Agencies

3.1 Overview

A major constraint in providing home health care in Montana is the distance between the agency and the patients - in short, accessibility. The rural nature of much of Montana means a great deal of travel time, and therefore some of the expense involved in providing home health care is spent in traveling. Because of the geographical expanse of Montana and its small population base, having a home health agency in every county would be impractical.

Instead, the further development of agencies serving multi-county districts with satellite units or personnel should be encouraged. This strategy would provide a greater population base for home health agencies, enabling them to provide a more comprehensive "package" of services and helping them to reduce their administrative costs. This concept is being used by the three largest home health agencies in Montana currently serving multi-county districts.

In estimating service need, the Governor's 12 planning districts are used as a geographical base. This does not mean that all home health agencies should be organized according to these districts. Each agency must determine for itself how big an area it can practically serve and what is financially feasible for it to serve. The Governor's planning districts simply suggest a possible strategy and method for delivering multi-county services.

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3.2 Estimate of Service Requirements

Table 4 shows the estimated number of patients and the number of home health agency personnel needed in 1985 in each of the 12 planning districts in Montana. These estimates have been based upon the following assumptions:

- About 12 patients per 1,000 population will use home health care services if they are available.
- The average length of time a person receives home health services and participates in an agency's program is three months.
- The minimal case load of a single home health agency is 150 active cases.

The estimated use rate of 12 patients per 1,000 population is the high estimate used by the Nebraska State Department of Health in addressing the need for Home Health Services.5) Other studies used a figure similar to this.

The average length of time a person receives home health services and the optimal active case load for a single home health agency were adapted from assumptions made by the Florida State Department of Health and Rehabilitative Services.6) The latter figure (150 active cases) is considerably less than the number suggested by the Florida Association of Home Health Agencies which indicated that an optimum number of active cases for any agency to have at any given time is about 300. It should also be noted that the method used in Florida suggested that the more rural areas would need a larger active case load to be "optimal".

In estimating the need for more home health agencies in Montana, it is assumed that an active case load of 150 cases is minimal for an agency to remain viable and self-sufficient. Home health care in Montana is a relatively new concept and time is needed before data on the experience of home health agencies becomes available. At the present time, it appears that many of the agencies in Montana are getting along with a smaller active case load but they also require some subsidization.

With the last two assumptions of 150 active cases and an annual load of 1,200 patients, the staffing profile of a typical home health agency in Montana might be:

1.0 FTE Administrator
4.4 FTE Registered Nurses
1.2 FTE Licensed Practical Nurses
8.2 FTE Home Health Aides and Homemakers
1.4 FTE Physical Therapists
0.7 FTE Speech Therapists

This type of staffing is considerably larger than that found in most Montana Home Health Agencies. However, most of the agencies are relatively new organizations and will probably expand, especially if encouraged to serve multi-county districts.

Although the assumptions used to estimate the optimal number of home health agencies are extremely crude, they do provide a rough guide for estimating the number of home health agencies in each planning district. Table 4 indicates a possible need for establishment of home health care agencies in the following areas:

- District 6 - Although the Yellowstone City/County Health Department is serving the three Southern Counties, it still appears that an agency might be established in the Lewistown Area.

- District 7 - The Yellowstone City/County Health Department serves almost the entire region and a for-profit organization (not a home health agency) which provides selective personal nursing services. However, because Yellowstone County is already served by a home health agency, it is not recommended that another, competing agency be established. More time and experience is needed on competing home health services exist before such a recommendation can be made.

- District 1 - There are currently no home health agencies serving the residents of this area. It appears that Glasgow or Wolf Point might be able to support a regional agency in the near future.

- District 5 - An additional Home Health Agency might be justified to serve the Glacier, Toole, Pondera and Teton County area. Two of the three existing agencies serve primarily patients in the Great Falls and surrounding area. The third agency is located in Browning and serves only Native Americans on the Blackfeet Indian Reservation.

At the same time, other home health agencies should consider expanding their services to surrounding counties. Most of the rural counties do not have a sufficient population base to individually support a home health agency, but could contribute to making a regional agency a viable institution.

Table 4 also indicates possible duplication of services in Districts 10 and 11. Two home health agencies are currently located in Lake and Missoula Counties. Since the second agency in Missoula (the Rehabilitation Center) will restrict itself to serving the center's former patients, this duplication is apparently minimized.

Although Table 4 also indicates a possible duplication of services in District 2, it is felt that since these agencies serve different counties, there is no duplication. The Richland Health Department has limited itself to the confines of Richland County and the Badlands Home Health Agency will serve Dawson, Wibaux and Fallon Counties.

REFERENCES

1. Revised Codes of Montana, Section 69-7301, subsection (2), Providing for the Licensing and Regulation of Home Health Agencies in Montana by the Department of Health and Environmental Sciences.

2. American Medical Association, "Statement on Home Health Care," Chicago, Illinois, 1973, Section 5.

3. Levenson, G., Type, Length and Cost of Care for Home Health Patients, Council of Home Health Agencies and Community Health Services, National League for Nursing, New York, 1975, Pub. No. 21-1589.

4. Ibid.

5. Nebraska Bureau of Comprehensive Health Planning, "Developing Home Health Care in Nebraska", Lincoln, Nebraska, September, 1974.

6. Florida State Department of Health and Rehabilitative Services, Methodology for Estimating the 'Need' for Home Health Care, July 22, 1977.

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	1985 Population	Estimated Home Health Patients	Optimal Number of Home Health Agencies	Number of Home Health Agencies Currently Serving The Area	Deficit (Surplus)
Northwestern Montana					
District 10 Lincoln, Flathead, Sanders & Lake Counties	102,455	1,229	2.05	3	(1)
District 11 Mineral, Missoula & Ravalli Counties	103,638	1,243	2.07	3	(1)
North Central Montana					
District 4 Liberty, Hill & Blaine Counties	29,529	354	.59	1	0
District 5 Glacier, Toole, Pondera, Teton, Chouteau & Cascade Counties	127,237	1,527	2.50	3	0
Southwestern Montana					
District 8 Lewis & Clark, Jefferson & Broadwater Counties	58,528	702	1.17	1	0
District 9 Gallatin, Park & Meagher Counties	60,864	730	1.22	1	0
District 12 Powell, Granite, Silver Bow, Deer Lodge, Beaverhead & Madison Counties	86,406	1,036	1.73	2	0
South Central Montana					
District 6 Judith Basin, Fergus, Petroleum, Musselshell, Golden Valley & Wheatland Counties	24,676	296	.49	0[1]	+1
District 7 Yellowstone, Stillwater, Sweet Grass, Carbon & Big Horn Counties	156,141	1,874	3.12	1[2]	+2
Eastern Montana					
District 1 Phillips, Valley, Daniels, Sheridan & Roosevelt Counties	41,641	499	.83	0	+1
District 2 Garfield, McCone, Dawson, Richland, Prairie & Wibaux Counties	33,010	390	.66	2	(1)
District 3 Treasure, Rosebud, Custer, Powder River, Carter, & Fallon Counties	35,601	427	.71	1	0

TABLE 4 - Estimated Need for Home Health Agencies in Montana in 1985 (By Governor's Planning Districts)

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4.8

SUMMARY

ALCOHOL SERVICES

This component reflects information from the 1977 State Comprehensive Plan. Since the time this document was approved by the HSA Governing Board, the 1979 State Plan has been published with revisions of data.

As one of the most serious health problems, alcoholism can be arrested, but not cured. Nationally, seven percent of the adult population or nine million persons are alcohol abusers or alcoholics. Montana ranks fourth in the nation in per capita consumption of alcoholic beverages.

Although for many years services to the alcoholic have been delivered by the non-professional, programs more recently have had the support of the National Institute of Alcohol Abuse and Alcoholism, and have been made to be more accountable for services. Certification standards will be implemented within the next year to insure providers possess a combination of education, training, experience and expertise in the field of alcoholism.

The MHSA recommends services be available in each region on a 24-hour basis and community based prevention, aftercare and intermediate care capability in all regions.

Programs should be regionalized with satellite counselors providing services to the outlying communities for improved accessibility. A major consideration presently is lack of data available from hospitals and alcoholics anonymous making it difficult to determine the number of persons being served. Hospitals should be encouraged to incorporate information representative of services provided into their present data system.

By 1983, 40 percent of the estimated alcohol abusers in Montana should have been identified and have received services. Legislation should be achieved to amend Montana's insurance code so rehabilitative services will be reimbursable. Guidelines should be developed for a coordinated effort between the Department of Institutions and law enforcement agencies in dealing with the public inebriate. Preventative education components should be included in all alcohol programs. Non-medical detoxification capabilities should be developed in North Central Montana and intermediate care should be developed in Eastern Montana. Residential or intermediate care should be expanded in Northwestern Montana.

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Approved by HSA
Governing Board
July 28, 1978

DRUG SERVICES

1.0 SERVICE DESCRIPTION

1.1 DEFINITION

Drugs are chemicals that have been formulated to reduce or relieve psychological or physical symptoms.

There are three basic classifications of drugs.[1]

1. PRESCRIPTION DRUGS can only be obtained through the explicit recommendations of a physician who specifies the way such drugs should be taken to produce the desired results.

2. PROPRIETARY DRUGS can be purchased by anyone without a prescription, and they are considered safe for people to self-administer as long as package directions are followed. Both prescription and proprietary drugs are created, manufactured, and labeled according to rigid industrial and governmental standards. New drugs can be marketed only after years of thorough testing of the product's effects, both short and long term.

3. ILLICIT DRUGS applies to all drugs or chemicals that are used illegally. The major classes of illicit drugs are the narcotics. sedatives, stimulants and hallucinogens.

   Marijuana is the most popular of the illicit drugs. Marijuana (pot or grass) has been smoked by several million people, but the number of users is not known. It is a mild hallucinogen in that it distorts a person's thinking. No significant long term physical effects have yet been identified, but social consequences can be disastrous due to stiff legal penalties.

Drug Abuse is the misuse of proprietary and prescription drugs and the use of illicit drugs. A few drugs have pronounced biochemical effects that develop into physical dependence. If a person is both physically and psychologically dependent on a drug, his/her problem is drug addiction.

The sniffing or inhalation of glues, paints, gasolines and other liquids to obtain a "high", a feeling of intoxication, is prevalent among the youth and native American population of Montana. Using glues, paints, or other liquids to obtain a high is referred to as solvent abuse.[2]

The number one drug problem facing the nation today is alcohol abuse.[3] A separate plan component has been developed addressing this problem in Montana and the services which are available to the alcoholic, alcohol abuser, and his/her family.

Drug services are those that are provided to the drug abuser, the drug addict, and the solvent abuser.

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In working with drug abuse, the Federal strategy has been to examine the level and patterns of drug usage and emphasize treatment toward the intensified and compulsive user.

Levels of Drug Use[4]

1. Experimental Use--is short-term, nonpatterned, or trial use, presumably motivated by curiosity, peer pressure, and the desire to experience a new feeling. Experimental use is a social activity and does not generally result in long-term or permanent physiological, psychological, or social impairment. Risks to the individual and society are considered low.

2. Social or Recreational Use--tends to be more patterned than experimental use but does not reach the frequency, intensity, or duration associated with uncontrolled use. Although the degree of risk associated with this use category differs by drug, it is generally considered low.

3. Circumstantial or Situational Use--is prompted by a perceived need or desire to achieve a known effect that is deemed helpful in coping with a specific situation--e.g., the student who uses "speed" to stay awake and alert during exam periods. In most cases, use of the drug is discontinued after completion of the task without the user's experiencing physical impairment or social dysfunction. This level of drug use does pose some risk to the individual. The greatest danger is that the user will become accustomed to the drug's effects, gain reinforcement from these effects, and ultimately increase the level of use.

4. Intensified Use--involves long-term, patterned, low-level use, with drugs becoming a part of daily life. Although this regular use of one drug, or a combination of drugs, may be defined as dependence, the user in this category generally remains a part of the community, both socially and economically. Again, the risk to individual and society varies by drug, and with dosage, but generally remains relatively low.

5. Compulsive Use--individuals in this category cannot discontinue use without experiencing psychological and/or physical discomfort. Their use is frequent, intense, and compulsive. Preoccupied with the task of obtaining an adequate amount of his/her drug(s) to prevent the abstinence or withdrawal syndrome, the compulsive user represents the highest risk of adverse consequences for both self and society.

Drug abuse treatment can be provided in several different settings.

The major environments for treatment may be described as follows:[5]

1. Outpatient care - when more intense levels of care are not necessary, a range of treatment services (individual, family, or group therapy, counseling, and even occupational or recreational therapy and social support services) may be offered in the outpatient setting. These programs often maintain evening hours to accommodate the schedules of working clients.

2. Day Care - In this environment, treatment and support services are

provided on a daily basis to clients who reside elsewhere. The client participates in a drug abuse treatment program, with or without medication, according to a minimum attendance schedule, as defined by the funding source (usually five or more hours per day, five or more days per week). Services provided may include individual, group, and family counseling; job development; and/or educational and legal services. In general, the client has regularly assigned and supervised salaried or non-salaried work functions at the clinic.

3. Residential Care - This setting for treatment is designed for persons who require structured and, possibly, long-term care, as well as some support with the activities of daily living. Therapeutic communities and halfway houses are two examples of this setting. In addition to housing, companionship, and group support, residential facilities may offer a range of personal counseling, medical, vocational, mental health, and social services.

4. Hospital/Inpatient Services - This setting is used mainly when individuals are physically dependent on a drug and when life-threatening medical, surgical, psychiatric, or obstetrical complications justify hospitalization. The inpatient option may also be considered for the treatment of poly-drug addictions requiring two separate withdrawal regimes. Some of the services initiated in the inpatient setting may be sustained by programs in other environments. The hospital inpatient environment includes medical wards, psychiatric wards, and secured hospital settings.

There are several different methods (modalities) of treatment used in drug abuse treatment. These methods are defined as follows:[6]

1. Drug-free-treatment - does not include any chemical agent or medication as primary part of drug abuse treatment. In this modality, temporary medication may be prescribed but the primary treatment method is extensive counseling, i.e., individual, group, family, etc.

2. Detoxification - is the period of planned withdrawal from drug dependency supported by the use of a prescribed medication.

3. Maintenance - under this treatment modality, clients receive methadone, LAAM (L-alpha-acetylmethadol), or Darvon-N in sufficiently large doses to achieve stabilization and to prevent the withdrawal symptoms caused by ceasing the use of other opiates.

The National Institute of Drug Abuse requires drug programs receiving Federal funds to ensure that at least the following services are available to a client: Outpatient care, detoxification (to be accomplished through a contract with hospitals), and access to a physician for a physical examination. Federal funding guidelines place emphasis on treatment rather than on prevention and education.

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1.2 Geographic Boundaries

This plan intends to address the drug services available within each of the five Health Systems Agency subareas encompassing the entire state of Montana.

2.0 Background Trends

2.1 Incidence, Prevalence, and Mortality

Under delegated authority from the Director of the Montana State Department of Institutions, the Alcohol and Drug Abuse Division acts as the single state authority for drug abuse treatment programs within the State of Montana. With that authority, the ADAD has the following responsibilities.[7]

a. Review, evaluate, and coordinate all Federal and State funding proposals relating to drug abuse.

b. Provide technical assistance to programs and conduct comprehensive on-site evaluations of drug abuse treatment programs to ensure compliance with State and Federal criteria.

c. Encourage development of coordinated community, regional, and statewide programs.

d. Administer Southwest Montana Drug Program.

The incidence and prevalence of drug use in Montana is based on the number of drug-related arrests and on data that is provided to the Alcohol and Drug Abuse Division by State approved drug abuse treatment programs.

The problem portion of Table I indicates the primary drug used by the client at the time of admission into treatment. Montana's geographic location, well inland and removed from most sources of illicit drugs, results in a very low level of usage of heroin and other opiates. The availability of amphetamines appears to be the reason that it is the most widely abused drug.

Table II indicates that most drug abusers in Montana have a poly-drug problem.

The majority of drug abusers admitted into a treatment program in Montana are white males and amphetamine users. Data shows that 93 percent of individuals entering a treatment program have a second drug problem and 64 percent have a third drug problem which is very likely alcohol.

TABLE I[8]

	1st Qtr. 1976 MT	1st Qtr. 1976 US	2nd Qtr. 1976 MT	2nd Qtr. 1976 US	3rd Qtr. 1976 MT	3rd Qtr. 1976 US	4th Qtr. 1976 MT	4th Qtr. 1976 US
ADMISSION								
First	85%	68%	80%	68%	64%		75%	
Readmit	9%	26%	15%	26%	26%		21%	
Transfer	6%	6%	5%	6%	10%		4%	
SEX								
Male	62%	74%	61%	74%	75%		59%	
Female	38%	26%	39%	26%	25%		41%	
LEGAL STATUS								
Voluntary	86%	83%	86%	83%	90%		99%	
Non-Voluntary	14%	17%	14%	17%	10%		1%	
PROBLEM								
None	0%	2%	1%	3%	0%		0%	
Opiates	12%	63%	11%	65%	17%		9%	
Alcohol	0%	7%	0%	7%	0%		0%	
Barbituates	26%	5%	26%	5%	23%		23%	
Amphetamines	45%	5%	51%	5%	41%		43%	
Marijuana	5%	10%	2%	9%	2%		7%	
Other	12%	8%	9%	7%	17%		18%	

TABLE II[9]

NUMBER OF DRUG PROBLEMS	NUMBER	PERCENT
One	202	100%
Two	188	93%
Three or More	130	64%

*Number of Drug Problems at Admission, November, 1976 - May, 1977. Southwestern Montana Drug Program. N = 202

The number of persons using marijuana that enter treatment is minimal in comparison to the number of persons entering treatment that are using other drugs. See Table I for comparison of drug usage in Montana to national abuse patterns.

The Alcohol and Drug Division prepared Table III concerning population, drug arrests, and drug treatment for the calendar year 1976. The estimated number of drug abusers was determined utilizing the actual number of persons admitted into treatment in the Southwestern Region (Region IV) as a base. Using this formula, the total estimated number of drug abusers needing treatment in Montana is 2412.[10] This number is not all inclusive and does not reflect experimental use, recreational use, or situational use of illicit drugs, but serves only as an indicator of the number of persons that may require drug services.

Drug services in Montana are primarily provided on an outpatient basis. Francis Mahon Deaconess Hospital in Glasgow recently developed a Chemical Dependency Center. Services include a twenty-eight day inpatient treatment program with aftercare and follow-up.

Detoxification in Montana generally is provided in a hospital setting.

Long term residential treatment is available at Lighthouse Drug Program in Galen.

3.0 SERVICE GUIDELINES AND CRITERIA

These criteria are intended for utilization in the review of Federal funds and the allocation of monies intended to develop or expand drug services.

3.1 COSTS

Drug services should be reimbursable through the implementation of a fee-for-services schedule, based on the client's ability to pay. Application for a Certificate of Need from the State Department of Health, Bureau of Health Planning and Resource Development, should be obtained prior to the development or expansion of drug services which are hospital or nursing-home based. The awarding of a Certificate of Need should be based on a demonstrated community need for the service, avoidance of unnecessary duplication of similar health services, and demonstrated financial feasibility.

Free-standing units making application for Federal funds should request a review application for the Proposed Use of Federal Funds to the Montana State Department of Health and Environmental Sciences, Health Planning and Resource Development Bureau, the Department of Institutions, and the Montana Health Systems Agency.

3.2 AVAILABILITY

Emergency drug services should be available in each region on a twenty-four hour, seven day per week basis.

TABLE III

MONTANA

Data Concerning Population, Drug Arrests and Drug Treatment by MH Region

Calendar Year 1976

CHART I

MH Region	Region I	Region II	Region III	Region IV	Region V	Total
Population	95,100 (13%)	147,400 (20%)	144,800 (20%)	178,200 (24%)	169,300 (23%)	734,800 (100%)
Drug Treatment Population	Unknown No Drug Program in Region I	Unknown No Drug Program in Region II	Unknown No Drug Program in Region III	Actual 577	Unknown No Drug Program in Region V	577
Arrests	248	258	442	316	548	1,812

CHART II

Estimated Treatment Population
Utilizing Population as base

MH Region	Region I	Region II	Region III	Region IV	Region V	Total
* % Factor	.53	.83	.87	1.0	.95	* 4.186
DRUG TYPE	Estimated	Estimated	Estimated	Actual	Estimated	Estimated
Opiates	37	58	61	70	67	293
Barbiturates	39	61	64	73	69	306
Other Sedatives	40	63	66	76	72	317
Amphetamines	133	209	219	252	239	1052
Cocaine	4	7	7	8	8	34
Marij-Hashish	13	20	21	24	23	101
Hallucinogens	27	42	44	51	48	212
Inhalents	11	17	17	20	19	84
Other	2	2	3	3	3	13
TOTAL	306	479	502	577	548	2412

* % Factor based on number of people receiving drug abuse treatment in Region IV during calendar year 1976 (statistics based only on SMDP) compared to Region IV population (Region = 1.0).

3.3 ACCESSIBILITY

To make drug services more accessible to the patient, programs should be regionalized with satellite counselors providing services to the outlying communities.

3.4 CONTINUITY

Provisions should be made for the coordination of organizations, agencies, and institutions that provide drug services.

Aftercare should be provided to the patient when he is released from a treatment center to strengthen the rehabilitation process.

3.5 QUALITY

The professional staff of alcohol and drug programs should be certified. Certification of counselors should be based on training, education, and experience, and those not meeting specific requirements should be excluded from the delivery system or placed on a provisional status, under the supervision of a certified staff member, where he/she can obtain the skills necessary to upgrade himself/herself to meet certification. At the present time, certification of drug and alcohol counselors in Montana is voluntary.

Treatment plans should be developed and tailored to meet the needs of each individual entering treatment.

4.0 PRESENT SITUATION

4.1 INVENTORY AND UTILIZATION LEVEL

In Montana, private physicians, hospitals, district courts, law enforcement agencies, alcohol and drug programs, health departments, the clergy, and mental health centers provide services to the drug abuser and addict and are available and accessible in each region.

The Department of Institutions promotes training, prevention, education, and public information activities in the State. Interested health care facilities received mini-grants from the State Drug Authority to provide basic information on drugs, such as, films, literature, and lectures.

Drug services in Montana are provided in the following settings: outpatient care, day care, residential care, and hospital/inpatient services.

The methods used in drug abuse treatment are drug free counseling and detoxification. No drug abuse program in Montana uses the maintenance treatment modality.

The following specific programs provide services in Montana.

1. Southwest Montana Drug Program (SMDP)
   Satellite offices: Butte, Montana
   Helena, Montana
   Anaconda, Montana
   SMDP contracts with Missoula and Bozeman for services

2. Lighthouse Residential Treatment Center, Galen
3. Rimrock Guidance Foundation, Billings
4. Swan River Youth Forest Camp, Lake County
5. Pine Hills School for Boys, Miles City
6. Deer Lodge State Prison, Deer Lodge
7. Wesley Center, Great Falls
8. Frances Mahon Deaconess Hospital Chemical Dependency Center
9. Alcohol and Drug Programs
10. Mental Health Centers
11. Hospitals

SOUTHWEST MONTANA DRUG PROGRAM

The Staff of the Southwest Montana Drug Program (SMDP) provides outpatient drug services to Southwest (Region IV), a twelve county area, through four satellite centers. SMDP is a State program administered by the Montana State Department of Institutions, Alcohol and Drug Abuse Division. Functionally, SMDP is under the Direct Services Section of the ADAD Community and Program Development Bureau. The Administrative Director of SMDP is accountable to the Bureau Chief of the Community and Program Development Bureau, who in turn, reports to the Division Administrator. The day to day operations and programmatic decisions for SMDP are the responsibility of the administrative director.

The Southwest Montana Drug Program operates three outpatient drug-free treatment satellites in Butte, Anaconda, and Helena, and contracts outpatient services with programs in Missoula and Bozeman. SMDP also contracts with Lighthouse Drug Program at Galen for residential detoxification services.

Each SMDP treatment center is staffed by one or more Master's Degree level counselors, several outreach counselors, and clerical workers.

The staff of SMDP satellites provided services to approximately 600 clients in 1976-1977. The programs also improved cooperation with existing community service agencies, increased referrals from law enforcement and the courts, improved staff capabilities and improved the quality of services offered in this time frame.[11]

Minimal prevention activities are conducted by SMDP, mostly in the form of public speaking engagements and outreach presentations in schools.

SMDP has an agreement with all major hospitals in Region IV to provide inpatient detoxification services. There are also agreements with local physicians and Family Planning Clinics to provide physical examinations to patients. An agreement also exists with Mental Health Centers and their satellites to provide psychological evaluations and consultation services.

All SMDP satellites are located in basically rural areas and conduct therapy groups and alternative activities designed specifically for women and youth. Counseling staff are active in cooperating with vocational rehabilitation agencies and with the State Job Service Center which facilitates job placements for SMDP clients.

The referral arrangements between SMDP treatment centers and criminal justice agencies, while informal, are highly developed. SMDP staff conduct group therapy at the prison for inmates nearing parole. Paroled inmates often become SMDP clients as a condition of their parole. Juvenile probation refers many clients to SMDP. When drug use is evident at arrest, SMDP staff are often asked to make recommendations to district court judges prior to sentencing. Many drug users are sentenced to complete treatment at the Lighthouse Residential Program as an alternative to imprisonment.

LIGHTHOUSE RESIDENTIAL TREATMENT CENTER

Lighthouse is a State-operated residential treatment facility and is a component of Galen State Hospital, which is a part of the Mental Health and Residential Services Division of the Department of Institutions. The Lighthouse Residential Drug Treatment Program is a fifteen-bed, drug-free therapeutic community. The service area for this program is the entire state of Montana. The occupancy rate is approximately 90%, and oftentimes clients are placed on a waiting list.

RIMROCK GUIDANCE FOUNDATION

Rimrock Guidance Foundation is funded by a statewide services contract and the United Way of Yellowstone County for the provision of drug abuse treatment services and is the only agency that is specifically identifiable as providing drug services in the South Central Region. All work performed by Rimrock is under the technical guidance and direction of the Alcohol and Drug Abuse Division.

The counselors provide drug services on an outpatient basis. Principal efforts from March-November, 1977, have been in the following areas:[12]

a. Advertising program via regional newspapers and radio.
b. Direct efforts with law enforcement agencies, physicians, hospitals, and employers.
c. Education and training programs for human service workers in the region.

Counselors provided drug services to 66 persons between March-November, 1977.

MISSOULA DRUG TREATMENT PROGRAM

SMDP contracts for outpatient services with the single identified drug program within the Eastern Region (Region V), the Missoula Drug Treatment Program. This program was established recently and sufficient data has not been compiled to determine the level of utilization. There are also several alcohol and drug programs operating within the region that provide limited services to the drug user.

SWAN RIVER YOUTH FOREST CAMP, LAKE COUNTY; PINE HILLS SCHOOL FOR BOYS, MILES CITY; DEER LODGE STATE PRISON, DEER LODGE

Three new substance abuse programs have been developed in the State to provide both alcohol and drug services to youth offenders in the criminal justice system.

Substance abuse services directed at populations of the three State correctional institutions, Pine Hills School for Boys, Swan River Youth Camp, and Deer Lodge State Prison are funded by the Montana Board of Crime Control and the Alcohol and Drug Abuse Division.

The alcohol and drug services that are provided are: education, group therapy and counseling. Follow-up and aftercare services are provided when a youth returns to the community.

WESLEY CENTER, GREAT FALLS

In 1977, the Wesley Center assisted the North Central Mental Health Center in conducting research and developing treatment for solvent abuse in Great Falls. Funding for this short term project was a mini-grant from the Alcohol and Drug Abuse Division, Department of Institutions. According to Jess Farris, Ph.D., of the Mental Health Center, there has been a reported 40% reduction in police detection of solvent abuse in the area since the project was completed.[13]

The Wesley Center in Great Falls is experiencing administrative problems. Therefore, at the present time, no drug services are offered through the center.

FRANCES MAHON DEACONESS HOSPITAL CHEMICAL DEPENDENCY CENTER

The Chemical Dependency Center in Glasgow is a 28-day inpatient treatment program. The following services are available at the Center: individual counseling, lectures, reading groups, group therapy, peer assessment and evaluation, and sharing experiences. Aftercare services and follow-up are coordinated with outreach counselors in the patients' immediate area.[14]

The Center has been providing services since January, 1978, and has served a total of 71 persons.[15] Most of these persons were poly-drug abusers, and the primary drug being abused was alcohol.

ALCOHOL AND DRUG PROGRAMS

Most alcohol centers in Montana are now identifying themselves as both alcohol and drug service providers.

However, counselors of these combined programs generally have more training in the provision of alcohol services.

At this time it is impossible to determine the number of persons that have received drug services as drugs are not included in the alcohol reporting form.

MENTAL HEALTH CENTERS

The staff of Mental Health Centers and their satellite offices are available and accessible in all regions of the State and do provide minimal drug services. The following is a breakdown by regions of the number of persons that received drug services on an outpatient basis in Montana in FY 1977.[16]

Region	Number of Clients
Eastern Montana	16
North Central Montana	40
South Central Montana	18
Southwestern Montana	6
Northwestern Montana	30
TOTAL	110

HOSPITALS

Information is not readily available to determine the number of persons hospitalized as a result of drug use.

In 1977, the SMDP, its satellites, Lighthouse, and Rimrock Guidance Foundation were the only programs reporting drug data to the Department of Institutions, Alcohol and Drug Abuse Division, so the utilization levels of other programs in the State for 1977 are not known.

Drug services in the State of Montana are supported primarily with Federal funds. State funds are used to operate the Lighthouse Residential Treatment Center at Galen.[17] (See Table I)

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REVIEW AND COMMENT ONLY

4.2 PROBLEMS

Prevention and education concerning drug use and abuse is not a high priority at the Federal level. Most monies are allocated to programs emphasizing research or treatment. The majority of monies available in Montana for the provision of drug services is Federal; therefore, there has been no concerted effort to develop and deliver any long-range prevention and education activities to the public.

Counselors in Alcohol and Drug Programs generally lack training specific

TABLE I - ANNUAL PERFORMANCE REPORT: EXPENDITURE REPORT SUMMARY

List only those funds which you anticipate receiving

1. STATE FUNDS	Administr.	Planning & Coordination	Treatment & Rehabilitation	Information Systems	Research & Evaluation	Prevention Intervention & Education	Training	Criminal Justice Interface	TOTAL
Tax-derived approp.			232,461						232,461
TOTAL			232,461						232,461
2. FEDERAL FUNDS NIDA 409 funds	12,134	19,294	6,149	6,162	16,162	42,420	18,827	6,162	127,310
NIDA 410 funds	26,225		267,551						293,776
Other NIDA funds				30,649	187,500		35,955		254,104
TOTAL	38,359	19,294	273,700	36,811	203,662	42,420	54,782	6,162	675,190
CATEGORY TOTALS	38,359	19,294	506,161	36,811	203,662	42,420	54,782	6,162	907,651

TOTAL STATE $ 232,461
TOTAL LOCAL $
TOTAL FED'L $ 675,190

GRANT TOTAL $ 907,651

TABLE II - STATE PLAN ACTION STRATEGY: EXPENDITURE PROJECTION SUMMARY

List only those funds which you anticipate receiving

1. STATE FUNDS	Administr.	Planning & Coordination	Treatment & Rehabilitation	Information Systems	Research & Evaluation	Prevention intervention & Education	Training	Criminal Justice Interface	TOTAL
Tax-derived approp.	2,010		215,346						217,356
TOTAL	2,010		215,346						217,356
2. LOCAL FUNDS Non-public funds			4,083						4,083
TOTAL			4,083						4,083
3. FEDERAL FUNDS NIDA 409 funds	14,511	14,751	23,270	3,887	13,887	46,250	19,667	8,887	145,110
NIDA 410 funds	37,200		422,228						459,428
Other NIDA funds				29,535	37,500		38,374		105,409
LEAA			16,737						16,737
Soc. Serv. Adm.			9,000						9,000
TOTAL	51,711	14,751	471,235	33,422	51,387	46,250	58,041	8,887	735,684
CATEGORY TOTALS	53,721	14,751	690,664	33,422	51,387	46,250	58,041	8,887	957,123

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TOTAL STATE $ 217,356
TOTAL LOCAL $ 4,083
TOTAL FED'L $ 735,684

GRANT TOTAL $957,123

to drug abuse.

Both funding and reporting for alcohol services and drug services are separate at the Federal and State level. In its present format, the alcohol reporting system does not allow for the incorporation of drug data. Therefore, it is impossible to determine the number of persons receiving drug services in programs that provide primarily alcohol services.

Because most drug programs in Montana are administered by the State, there is little incentive to develop a fee-for-service scale based on the client's ability to pay, as any reimbursements made for services must revert to the State General Fund.

5.0 ESTIMATE OF SERVICE REQUIREMENTS

The estimate of service requirements was taken from the State Plan for Drug Abuse which was prepared by Alcohol and Drug Abuse Division of the Montana State Department of Institutions.[18]

REGION I, Eastern Montana

The Regional Coordinator for alcohol and drug services in Eastern Montana is the Director of the District II Alcohol and Drug Program in Plentywood.

Staff of the Alcohol and Drug Programs are trained primarily to provide alcohol services; therefore, there is a need for training in the area of drug abuse. This training needs to be initiated at the basic level and programmed to continue through to the point where all staff members will be able to meet voluntary certification standards.

There is a need to develop a region-wide awareness and education program in Eastern Montana so that the public is informed on drug services available in their communities.

Drug education in the school system is fragmented. Many of the schools are not sure that it is part of their responsibility to address the problem at all.

REGION II, North Central Montana

A survey conducted in the North Central Region indicated that all counties felt a need for prevention, intervention, education, and public information about drugs.

REGION III, South Central Montana

Rimrock Guidance Foundation has provided a list of needs for the Billings area which is based on staff observation, citizen and media reports and comments from other agencies.

Billings area needs are:

1. A comprehensive community-wide substance abuse prevention effort,

2. Prevention activities by and for youth and family,
3. Increase public awareness of abuse of social, prescription, over-the-counter and illegal drugs,
4. Alternative treatment modalities,
5. Substance abuse training for clergy.

REGION IV, Southwest Montana

Southwest Montana Drug Program describes prevention resources in Southwest Montana as virtually non-existent. SMDP staff members provide some prevention type activities in the form of public speaking engagements and outreach presentations, but staff time is limited and funds are not currently available to SMDP for this type activity. Local school systems do provide some prevention and education within the schools.

The first priority in training for SMDP staff is providing training and education necessary to meet certification standards.

SMDP staff has also identified a need for training in the areas of public relations and fund raising.

REGION V, Northwest Montana

There is a need for prevention, intervention, education, and public information about drugs. This Region has expressed a need to utilize existing alcohol and drug programs in the provision of drug services. Alcohol counselors need education geared toward drug treatment and chemical dependency as they are presently almost totally alcohol oriented.

6.0 RECOMMENDATIONS

1. By 1985, information and referral and prevention and education activities should be developed and implemented in every region utilizing existing alcohol programs as resources to provide such services where there is no single identifiable drug program accessible.
2. At least one counselor in every alcohol and drug program in Montana should receive training specific to drug abuse.
3. Funding for alcohol and drug programs should not be separate at the Federal level.
4. There should be more emphasis on prevention and education rather than treatment.
5. Drug programs and alcohol programs should be combined and be substance abuse or chemical dependency programs.
6. There should be a uniform reporting system for alcohol and drug data.

[illegible] MENT
[illegible]

7. Legislation should be achieved to allow development of a fee-for-service schedule for all state-administered drug programs so that monies received could be budgeted and used for prevention and education activities. Along these lines, employers, unions, and insurance companies should be encouraged to include coverage for all rehabilitative drug services provided in settings other than inpatient.

8. To insure quality care, counselors providing drug services should seek voluntary certification until such time as the legislature acts to make certification mandatory.

9. The Department of Institutions should emphasize and encourage drug education and prevention activities through the school system.

10. Emphasize and encourage training for all rural law enforcement persons and all health care providers in recognizing drug abuse.

GLOSSARY[19]

NARCOTICS - drugs which produce insensibility or stupor due to their depressant effect on the central nervous system. Included in narcotics are: opium, opium derivatives (morphine, codeine, heroin), and synthetic opiates (meperidine, oxycodone, methadone). Cocaine is also considered as a narcotic for law enforcement reasons even though it is actually a stimulant.

BARBITURATES - the most commonly abused sedative. They are used for the treatment of epilepsy, high blood pressure, insomnia, and in the treatment and diagnoses of mental disorders.

TRANQUILIZERS - are generally used to counteract tension and anxiety without significantly impairing mental and physical functions.

STIMULANTS - are drugs which directly stimulate the central nervous system. The most widely known stimulant is caffeine. The most commonly abused stimulant is amphetamines.

HALLUCINOGENS - drugs which distort perception, produce dream images and hallucinations, are known as hallucinogens, psychotomimetics, dysleptics, or psychedelics. Mescaline, peyote, LSD, and STP are the most commonly abused drugs in this classification.

Marijuana is often called "pot" or "grass", and is smoked in pipes, rolled into cigarettes, or eaten in foods. Under Federal law, marijuana is defined to mean "all parts of the cannabis plant except for the stalks and sterilized seeds". All other preparations of the plant, whether of leaves, flowers, hashish, or chemical extracts, are considered various forms of marijuana. In the United States the term marijuana usually refers to a preparation of pulverized leaves, resine, flowers, or a combination of these. Marijuana is used for the primary purpose of attaining a "high". The active ingredient, tretrahydrocannabinol produces time and space perpetual distortions to the user.

FOOTNOTES

1. Drug Abuse, Medical Datamation, Bellevue, OH, 1976, pg. 1.

2. Montana State Drug Abuse Prevention Plan, 1978, Department of Institutions, Alcohol and Drug Abuse Division, pg. 23.

3. First Special Report to the United States Congress on Alcohol and Health, U.S. Department of Health, Education, and Welfare, Government Printing Office, Washington, D.C., 1971.

4. Drug Use in America: Problem in Perspective, Second Annual Report of the National Commission on Marijuana and Drug Abuse, March, 1973, pp. 95-98.

5. Desk Reference for Planners, U.S. Department of Health, Education and Welfare, Public Health Service, Washington, D.C., December 1977, Section L. pg. 23.

6. Ibid, pp. 6-7.

7. Montana State Drug Abuse Prevention Plan, 1978, pg. 53.

8. Ibid, pg. 22.

9. Ibid, pg. 20.

10. Ibid, pg. 26.

11. Ibid, pg. 26.

12. Information provided by Rimrock Guidance Foundation to the Department of Institutions.

13. Report prepared for Alcohol and Drug Abuse Division by Jess Farris, Ph.D., Mental Health Center, Great Falls, Montana.

14. An Introduction to Chemical Dependency Center, Frances Mahon Deaconess Hospital, Glasgow, Montana.

15. Information provided by staff of Chemical Dependency Center in Glasgow.

16. Information provided by Mental Health and Residential Services Division, Department of Institutions.

17. Montana State Drug Abuse Prevention Plan, 1978, pg. 187.

18. Ibid, pg. 25.

19. Drug Abuse: A Game Without Winners, Armed Forces Information Service, Department of Defense, U.S. Government Printing Office, Washington, D.C., 1968, pp. 17-35.

4-24-78

ACTION TAKEN ON COMMENTS THAT WERE TO BE CONSIDERED BY PLAN DEVELOPMENT COMMITTEE

1. Add #11 under Recommendations page 19:
   Request legislation be achieved to rescind 18 year old drinking age limit to 19, 20, or 21 regardless of legal age in Montana.
   --more appropriate in Alcohol Services Component

2. Mental Health, Drugs and Alcohol should be administered from one division at the State level.
   --Legislative action needed to accomplish this

3. Greater emphasis on prescription drug abuse.
   --I agree, however, there is no data available to explore this avenue

4. Include cost of recommendation #1, page 19.
   --Programs are already funded--training monies are available for this.

*5. Recommendation #4, page 19, should be a management decision of programs - not mandated. (25% of monies into prevention)
   --Reworded

6. Change title of component to Chemical Dependency Services Component.
   --an appropriate time to do this would be next year when alcohol and drug services could be combined

*7. Change recommendation #4 to read: There should be more emphasis on prevention and education rather than treatment.
   --I will change this.

8. Combine recommendation #5 into recommendation #1.
   --Purely semantics - it really makes no difference

*9. Recommendation #7 - add: monies received should be budgeted into state administered programs to be used for prevention

10. Clarify: "education" as addressed in South Central's recommendation. This should be a function of the Department of Institutions

11. Studies should be done to determine what causes drug abuse
   --This component is designed to look at services, not causes.

12. Hospitals should be required to report hospitalization due to drug abuse.
   --Good suggestion but is it practical.

*Incorporated.

4.9

SUMMARY

DRUG SERVICES

This component describes the basic classification of drugs, drug-abuse and the different levels of drug use. The different types of treatment as far as environmental settings and treatment modalities are explained. With the Alcohol and Drug Abuse Division (ADAD) as that authority responsible for drug abuse treatment, a list of those responsibilities are included.

The incidence and prevalence of drug use in Montana is based on the number of drug-related arrests and is provided to ADAD by state approved drug-abuse treatment programs. Heroin and other opiates have a very low level of usage, with amphetamines the most widely abused drug. Ninety-three percent of individuals entering treatment have poly-drug problems.

The estimated number of drug abusers for the state was determined by using the number of persons admitted for treatment in the Southwest Region. Information is not available to determine the number of persons hospitalized as a result of drug abuse.

Prevention and education are not a high priority at the federal level, therefore, monies are more readily available for research or treatment. Training of drug-abuse counselors is generally inadequate. The specific needs of each region are listed with the following recommendations:

1. Development of information, referral and prevention activities in each region using alcohol programs as a resource.
2. One counselor in each alcohol and drug program receives training specific to drug-abuse.
3. Funding for alcohol and drug programs should not be separate at the federal level.
4. More emphasis on prevention and education rather than treatment.
5. Drug programs and alcohol programs should be combined and be substance abuse or chemical dependency programs.
6. Uniform reporting system for alcohol and drug data.
7. Development of a fee-for-service schedule along with insurance coverage for all rehabilitative drug services provided in settings other than inpatient.

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8. Voluntary certification of counselors.
9. Encourage drug education and prevention activities in schools.
10. Encourage training for all rural law enforcement persons and all health care providers to recognize drug abuse.

[illegible] DOCUMENT
REVIEW ONLY

Approved by HSA
Governing Board
July 28, 1978

DRUG SERVICES

1.0 SERVICE DESCRIPTION

1.1 DEFINITION

Drugs are chemicals that have been formulated to reduce or relieve psychological or physical symptoms.

There are three basic classifications of drugs.[1]

1. PRESCRIPTION DRUGS can only be obtained through the explicit recommendations of a physician who specifies the way such drugs should be taken to produce the desired results.

2. PROPRIETARY DRUGS can be purchased by anyone without a prescription, and they are considered safe for people to self-administer as long as package directions are followed. Both prescription and proprietary drugs are created, manufactured, and labeled according to rigid industrial and governmental standards. New drugs can be marketed only after years of thorough testing of the product's effects, both short and long term.

3. ILLICIT DRUGS applies to all drugs or chemicals that are used illegally. The major classes of illicit drugs are the narcotics. sedatives, stimulants and hallucinogens.

   Marijuana is the most popular of the illicit drugs. Marijuana (pot or grass) has been smoked by several million people, but the number of users is not known. It is a mild hallucinogen in that it distorts a person's thinking. No significant long term physical effects have yet been identified, but social consequences can be disastrous due to stiff legal penalties.

Drug Abuse is the misuse of proprietary and prescription drugs and the use of illicit drugs. A few drugs have pronounced biochemical effects that develop into physical dependence. If a person is both physically and psychologically dependent on a drug, his/her problem is drug addiction.

The sniffing or inhalation of glues, paints, gasolines and other liquids to obtain a "high", a feeling of intoxication, is prevalent among the youth and native American population of Montana. Using glues, paints, or other liquids to obtain a high is referred to as solvent abuse.[2]

The number one drug problem facing the nation today is alcohol abuse.[3] A separate plan component has been developed addressing this problem in Montana and the services which are available to the alcoholic, alcohol abuser, and his/her family.

Drug services are those that are provided to the drug abuser, the drug addict, and the solvent abuser.

REVIEW DOCUMENT
DRAFT

In working with drug abuse, the Federal strategy has been to examine the level and patterns of drug usage and emphasize treatment toward the intensified and compulsive user.

Levels of Drug Use[4]

1. Experimental Use--is short-term, nonpatterned, or trial use, presumably motivated by curiosity, peer pressure, and the desire to experience a new feeling. Experimental use is a social activity and does not generally result in long-term or permanent physiological, psychological, or social impairment. Risks to the individual and society are considered low.
2. Social or Recreational Use--tends to be more patterned than experimental use but does not reach the frequency, intensity, or duration associated with uncontrolled use. Although the degree of risk associated with this use category differs by drug, it is generally considered low.
3. Circumstantial or Situational Use--is prompted by a perceived need or desire to achieve a known effect that is deemed helpful in coping with a specific situation--e.g., the student who uses "speed" to stay awake and alert during exam periods. In most cases, use of the drug is discontinued after completion of the task without the user's experiencing physical impairment or social dysfunction. This level of drug use does pose some risk to the individual. The greatest danger is that the user will become accustomed to the drug's effects, gain reinforcement from these effects, and ultimately increase the level of use.
4. Intensified Use--involves long-term, patterned, low-level use, with drugs becoming a part of daily life. Although this regular use of one drug, or a combination of drugs, may be defined as dependence, the user in this category generally remains a part of the community, both socially and economically. Again, the risk to individual and society varies by drug, and with dosage, but generally remains relatively low.
5. Compulsive Use--individuals in this category cannot discontinue use without experiencing psychological and/or physical discomfort. Their use is frequent, intense, and compulsive. Preoccupied with the task of obtaining an adequate amount of his/her drug(s) to prevent the abstinence or withdrawal syndrome, the compulsive user represents the highest risk of adverse consequences for both self and society.

Drug abuse treatment can be provided in several different settings.

The major environments for treatment may be described as follows:[5]

1. Outpatient care - when more intense levels of care are not necessary, a range of treatment services (individual, family, or group therapy, counseling, and even occupational or recreational therapy and social support services) may be offered in the outpatient setting. These programs often maintain evening hours to accommodate the schedules of working clients.
2. Day Care - In this environment, treatment and support services are

provided on a daily basis to clients who reside elsewhere. The client participates in a drug abuse treatment program, with or without medication, according to a minimum attendance schedule, as defined by the funding source (usually five or more hours per day, five or more days per week). Services provided may include individual, group, and family counseling; job development; and/or educational and legal services. In general, the client has regularly assigned and supervised salaried or non-salaried work functions at the clinic.

3. Residential Care - This setting for treatment is designed for persons who require structured and, possibly, long-term care, as well as some support with the activities of daily living. Therapeutic communities and halfway houses are two examples of this setting. In addition to housing, companionship, and group support, residential facilities may offer a range of personal counseling, medical, vocational, mental health, and social services.

4. Hospital/Inpatient Services - This setting is used mainly when individuals are physically dependent on a drug and when life-threatening medical, surgical, psychiatric, or obstetrical complications justify hospitalization. The inpatient option may also be considered for the treatment of poly-drug addictions requiring two separate withdrawal regimes. Some of the services initiated in the inpatient setting may be sustained by programs in other environments. The hospital inpatient environment includes medical wards, psychiatric wards, and secured hospital settings.

There are several different methods (modalities) of treatment used in drug abuse treatment. These methods are defined as follows:[6]

1. Drug-free-treatment - does not include any chemical agent or medication as primary part of drug abuse treatment. In this modality, temporary medication may be prescribed but the primary treatment method is extensive counseling, i.e., individual, group, family, etc.

2. Detoxification - is the period of planned withdrawal from drug dependency supported by the use of a prescribed medication.

3. Maintenance - under this treatment modality, clients receive methadone, LAAM (L-alpha-acetylmethadol), or Darvon-N in sufficiently large doses to achieve stabilization and to prevent the withdrawal symptoms caused by ceasing the use of other opiates.

The National Institute of Drug Abuse requires drug programs receiving Federal funds to ensure that at least the following services are available to a client: Outpatient care, detoxification (to be accomplished through a contract with hospitals), and access to a physician for a physical examination. Federal funding guidelines place emphasis on treatment rather than on prevention and education.

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1.2 Geographic Boundaries

This plan intends to address the drug services available within each of the five Health Systems Agency subareas encompassing the entire state of Montana.

2.0 Background Trends

2.1 Incidence, Prevalence, and Mortality

Under delegated authority from the Director of the Montana State Department of Institutions, the Alcohol and Drug Abuse Division acts as the single state authority for drug abuse treatment programs within the State of Montana. With that authority, the ADAD has the following responsibilities.[7]

a. Review, evaluate, and coordinate all Federal and State funding proposals relating to drug abuse.

b. Provide technical assistance to programs and conduct comprehensive on-site evaluations of drug abuse treatment programs to ensure compliance with State and Federal criteria.

c. Encourage development of coordinated community, regional, and statewide programs.

d. Administer Southwest Montana Drug Program.

The incidence and prevalence of drug use in Montana is based on the number of drug-related arrests and on data that is provided to the Alcohol and Drug Abuse Division by State approved drug abuse treatment programs.

The problem portion of Table I indicates the primary drug used by the client at the time of admission into treatment. Montana's geographic location, well inland and removed from most sources of illicit drugs, results in a very low level of usage of heroin and other opiates. The availability of amphetamines appears to be the reason that it is the most widely abused drug.

Table II indicates that most drug abusers in Montana have a poly-drug problem.

The majority of drug abusers admitted into a treatment program in Montana are white males and amphetamine users. Data shows that 93 percent of individuals entering a treatment program have a second drug problem and 64 percent have a third drug problem which is very likely alcohol.

TABLE I[8]

	1st Qtr. 1976		2nd Qtr. 1976		3rd Qtr. 1976		4th Qtr. 1976	
	MT	US	MT	US	MT	US	MT	US
ADMISSION								
First	85%	68%	80%	68%	64%		75%	
Readmit	9%	26%	15%	26%	26%		21%	
Transfer	6%	6%	5%	6%	10%		4%	
SEX								
Male	62%	74%	61%	74%	75%		59%	
Female	38%	26%	39%	26%	25%		41%	
LEGAL STATUS								
Voluntary	86%	83%	86%	83%	90%		99%	
Non-Voluntary	14%	17%	14%	17%	10%		1%	
PROBLEM								
None	0%	2%	1%	2%	0%		0%	
Opiates	12%	63%	11%	65%	17%		9%	
Alcohol	0%	7%	0%	7%	0%		0%	
Barbituates	26%	5%	26%	5%	23%		23%	
Amphetamines	45%	5%	51%	5%	41%		43%	
Marijuana	5%	10%	2%	9%	2%		7%	
Other	12%	8%	9%	7%	17%		18%	

TABLE II[9]

NUMBER OF DRUG PROBLEMS	NUMBER	PERCENT
One	202	100%
Two	188	93%
Three or More	130	64%

*Number of Drug Problems at Admission, November, 1976 - May, 1977. Southwestern Montana Drug Program. N = 202

REVIEW AND COMMENT ONLY

The number of persons using marijuana that enter treatment is minimal in comparison to the number of persons entering treatment that are using other drugs. See Table I for comparison of drug usage in Montana to national abuse patterns.

The Alcohol and Drug Division prepared Table III concerning population, drug arrests, and drug treatment for the calendar year 1976. The estimated number of drug abusers was determined utilizing the actual number of persons admitted into treatment in the Southwestern Region (Region IV) as a base. Using this formula, the total estimated number of drug abusers needing treatment in Montana is 2412.[10] This number is not all inclusive and does not reflect experimental use, recreational use, or situational use of illicit drugs, but serves only as an indicator of the number of persons that may require drug services.

Drug services in Montana are primarily provided on an outpatient basis. Francis Mahon Deaconess Hospital in Glasgow recently developed a Chemical Dependency Center. Services include a twenty-eight day inpatient treatment program with aftercare and follow-up.

Detoxification in Montana generally is provided in a hospital setting.

Long term residential treatment is available at Lighthouse Drug Program in Galen.

3.0 SERVICE GUIDELINES AND CRITERIA

These criteria are intended for utilization in the review of Federal funds and the allocation of monies intended to develop or expand drug services.

3.1 COSTS

Drug services should be reimbursable through the implementation of a fee-for-services schedule, based on the client's ability to pay. Application for a Certificate of Need from the State Department of Health, Bureau of Health Planning and Resource Development, should be obtained prior to the development or expansion of drug services which are hospital or nursing-home based. The awarding of a Certificate of Need should be based on a demonstrated community need for the service, avoidance of unnecessary duplication of similar health services, and demonstrated financial feasibility.

Free-standing units making application for Federal funds should request a review application for the Proposed Use of Federal Funds to the Montana State Department of Health and Environmental Sciences, Health Planning and Resource Development Bureau, the Department of Institutions, and the Montana Health Systems Agency.

3.2 AVAILABILITY

Emergency drug services should be available in each region on a twenty-four hour, seven day per week basis.

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TABLE III

MONTANA
Data Concerning Population,
Drug Arrests and Drug Treatment by MH Region
Calendar Year 1976

CHART I

MH Region	Region I	Region II	Region III	Region IV	Region V	Total
Population	95,100 (13%)	147,400 (20%)	144,800 (20%)	178,200 (24%)	169,300 (23%)	734,800 (100%)
Drug Treatment Population	Unknown No Drug Program in Region I	Unknown No Drug Program in Region II	Unknown No Drug Program in Region III	Actual 577	Unknown No Drug Program in Region V	577
Arrests	248	258	442	316	548	1,812

CHART II

Estimated Treatment Population
Utilizing Population as base

MH Region	Region I	Region II	Region III	Region IV	Region V	Total
* % Factor	.53	.83	.87	1.0	.95	* 4.186
DRUG TYPE	Estimated	Estimated	Estimated	Actual	Estimated	Estimated
Opiates	37	58	61	70	67	293
Barbiturates	39	61	64	73	69	306
Other Sedatives	40	63	66	76	72	317
Amphetamines	133	209	219	252	239	1052
Cocaine	4	7	7	8	8	34
Marij-Hashish	13	20	21	24	23	101
Hallucinogens	27	42	44	51	48	212
Inhalents	11	17	17	20	19	84
Other	2	2	3	3	3	13
TOTAL	306	479	502	577	548	2412

* % Factor based on number of people receiving drug abuse treatment in Region IV during calendar year 1976 (statistics based only on SMDP) compared to Region IV population (Region = 1.0).

[illegible] COMMENT ONLY

3.3 ACCESSIBILITY

To make drug services more accessible to the patient, programs should be regionalized with satellite counselors providing services to the outlying communities.

3.4 CONTINUITY

Provisions should be made for the coordination of organizations, agencies, and institutions that provide drug services.

Aftercare should be provided to the patient when he is released from a treatment center to strengthen the rehabilitation process.

3.5 QUALITY

The professional staff of alcohol and drug programs should be certified. Certification of counselors should be based on training, education, and experience, and those not meeting specific requirements should be excluded from the delivery system or placed on a provisional status, under the supervision of a certified staff member, where he/she can obtain the skills necessary to upgrade himself/herself to meet certification. At the present time, certification of drug and alcohol counselors in Montana is voluntary.

Treatment plans should be developed and tailored to meet the needs of each individual entering treatment.

4.0 PRESENT SITUATION

4.1 INVENTORY AND UTILIZATION LEVEL

In Montana, private physicians, hospitals, district courts, law enforcement agencies, alcohol and drug programs, health departments, the clergy, and mental health centers provide services to the drug abuser and addict and are available and accessible in each region.

The Department of Institutions promotes training, prevention, education, and public information activities in the State. Interested health care facilities received mini-grants from the State Drug Authority to provide basic information on drugs, such as, films, literature, and lectures.

Drug services in Montana are provided in the following settings: outpatient care, day care, residential care, and hospital/inpatient services.

The methods used in drug abuse treatment are drug free counseling and detoxification. No drug abuse program in Montana uses the maintenance treatment modality.

The following specific programs provide services in Montana.

1. Southwest Montana Drug Program (SMDP)
   Satellite offices: Butte, Montana
   Helena, Montana
   Anaconda, Montana
   SMDP contracts with Missoula and Bozeman for services

2. Lighthouse Residential Treatment Center, Galen
3. Rimrock Guidance Foundation, Billings
4. Swan River Youth Forest Camp, Lake County
5. Pine Hills School for Boys, Miles City
6. Deer Lodge State Prison, Deer Lodge
7. Wesley Center, Great Falls
8. Frances Mahon Deaconess Hospital Chemical Dependency Center
9. Alcohol and Drug Programs
10. Mental Health Centers
11. Hospitals

SOUTHWEST MONTANA DRUG PROGRAM

The Staff of the Southwest Montana Drug Program (SMDP) provides outpatient drug services to Southwest (Region IV), a twelve county area, through four satellite centers. SMDP is a State program administered by the Montana State Department of Institutions, Alcohol and Drug Abuse Division. Functionally, SMDP is under the Direct Services Section of the ADAD Community and Program Development Bureau. The Administrative Director of SMDP is accountable to the Bureau Chief of the Community and Program Development Bureau, who in turn, reports to the Division Administrator. The day to day operations and programmatic decisions for SMDP are the responsibility of the administrative director.

The Southwest Montana Drug Program operates three outpatient drug-free treatment satellites in Butte, Anaconda, and Helena, and contracts outpatient services with programs in Missoula and Bozeman. SMDP also contracts with Lighthouse Drug Program at Galen for residential detoxification services.

Each SMDP treatment center is staffed by one or more Master's Degree level counselors, several outreach counselors, and clerical workers.

The staff of SMDP satellites provided services to approximately 600 clients in 1976-1977. The programs also improved cooperation with existing community service agencies, increased referrals from law enforcement and the courts, improved staff capabilities and improved the quality of services offered in this time frame.[11]

Minimal prevention activities are conducted by SMDP, mostly in the form of public speaking engagements and outreach presentations in schools.

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SMDP has an agreement with all major hospitals in Region IV to provide inpatient detoxification services. There are also agreements with local physicians and Family Planning Clinics to provide physical examinations to patients. An agreement also exists with Mental Health Centers and their satellites to provide psychological evaluations and consultation services.

All SMDP satellites are located in basically rural areas and conduct therapy groups and alternative activities designed specifically for women and youth. Counseling staff are active in cooperating with vocational rehabilitation agencies and with the State Job Service Center which facilitates job placements for SMDP clients.

The referral arrangements between SMDP treatment centers and criminal justice agencies, while informal, are highly developed. SMDP staff conduct group therapy at the prison for inmates nearing parole. Paroled inmates often become SMDP clients as a condition of their parole. Juvenile probation refers many clients to SMDP. When drug use is evident at arrest, SMDP staff are often asked to make recommendations to district court judges prior to sentencing. Many drug users are sentenced to complete treatment at the Lighthouse Residential Program as an alternative to imprisonment.

LIGHTHOUSE RESIDENTIAL TREATMENT CENTER

Lighthouse is a State-operated residential treatment facility and is a component of Galen State Hospital, which is a part of the Mental Health and Residential Services Division of the Department of Institutions. The Lighthouse Residential Drug Treatment Program is a fifteen-bed, drug-free therapeutic community. The service area for this program is the entire state of Montana. The occupancy rate is approximately 90%, and oftentimes clients are placed on a waiting list.

RIMROCK GUIDANCE FOUNDATION

Rimrock Guidance Foundation is funded by a statewide services contract and the United Way of Yellowstone County for the provision of drug abuse treatment services and is the only agency that is specifically identifiable as providing drug services in the South Central Region. All work performed by Rimrock is under the technical guidance and direction of the Alcohol and Drug Abuse Division.

The counselors provide drug services on an outpatient basis. Principal efforts from March-November, 1977, have been in the following areas:[12]

a. Advertising program via regional newspapers and radio.
b. Direct efforts with law enforcement agencies, physicians, hospitals, and employers.
c. Education and training programs for human service workers in the region.

Counselors provided drug services to 66 persons between March-November, 1977.

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MISSOULA DRUG TREATMENT PROGRAM

SMDP contracts for outpatient services with the single identified drug program within the Eastern Region (Region V), the Missoula Drug Treatment Program. This program was established recently and sufficient data has not been compiled to determine the level of utilization. There are also several alcohol and drug programs operating within the region that provide limited services to the drug user.

SWAN RIVER YOUTH FOREST CAMP, LAKE COUNTY; PINE HILLS SCHOOL FOR BOYS, MILES CITY; DEER LODGE STATE PRISON, DEER LODGE

Three new substance abuse programs have been developed in the State to provide both alcohol and drug services to youth offenders in the criminal justice system.

Substance abuse services directed at populations of the three State correctional institutions, Pine Hills School for Boys, Swan River Youth Camp, and Deer Lodge State Prison are funded by the Montana Board of Crime Control and the Alcohol and Drug Abuse Division.

The alcohol and drug services that are provided are: education, group therapy and counseling. Follow-up and aftercare services are provided when a youth returns to the community.

WESLEY CENTER, GREAT FALLS

In 1977, the Wesley Center assisted the North Central Mental Health Center in conducting research and developing treatment for solvent abuse in Great Falls. Funding for this short term project was a mini-grant from the Alcohol and Drug Abuse Division, Department of Institutions. According to Jess Farris, Ph.D., of the Mental Health Center, there has been a reported 40% reduction in police detection of solvent abuse in the area since the project was completed.[13]

The Wesley Center in Great Falls is experiencing administrative problems. Therefore, at the present time, no drug services are offered through the center.

FRANCES MAHON DEACONESS HOSPITAL CHEMICAL DEPENDENCY CENTER

The Chemical Dependency Center in Glasgow is a 28-day inpatient treatment program. The following services are available at the Center: individual counseling, lectures, reading groups, group therapy, peer assessment and evaluation, and sharing experiences. Aftercare services and follow-up are coordinated with outreach counselors in the patients' immediate area.[14]

The Center has been providing services since January, 1978, and has served a total of 71 persons.[15] Most of these persons were poly-drug abusers, and the primary drug being abused was alcohol.

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ALCOHOL AND DRUG PROGRAMS

Most alcohol centers in Montana are now identifying themselves as both alcohol and drug service providers.

However, counselors of these combined programs generally have more training in the provision of alcohol services.

At this time it is impossible to determine the number of persons that have received drug services as drugs are not included in the alcohol reporting form.

MENTAL HEALTH CENTERS

The staff of Mental Health Centers and their satellite offices are available and accessible in all regions of the State and do provide minimal drug services. The following is a breakdown by regions of the number of persons that received drug services on an outpatient basis in Montana in FY 1977.[16]

Region	Number of Clients
Eastern Montana	16
North Central Montana	40
South Central Montana	18
Southwestern Montana	6
Northwestern Montana	30
TOTAL	110

HOSPITALS

Information is not readily available to determine the number of persons hospitalized as a result of drug use.

In 1977, the SMDP, its satellites, Lighthouse, and Rimrock Guidance Foundation were the only programs reporting drug data to the Department of Institutions, Alcohol and Drug Abuse Division, so the utilization levels of other programs in the State for 1977 are not known.

Drug services in the State of Montana are supported primarily with Federal funds. State funds are used to operate the Lighthouse Residential Treatment Center at Galen.[17] (See Table I).

4.2 PROBLEMS

Prevention and education concerning drug use and abuse is not a high priority at the Federal level. Most monies are allocated to programs emphasizing research or treatment. The majority of monies available in Montana for the provision of drug services is Federal; therefore, there has been no concerted effort to develop and deliver any long-range prevention and education activities to the public.

Counselors in Alcohol and Drug Programs generally lack training specific

TABLE I - ANNUAL PERFORMANCE REPORT: EXPENDITURE REPORT SUMMARY

List only those funds which you anticipate receiving

1. STATE FUNDS	Administr.	Planning & Coordination	Treatment & Rehabilitation	Information Systems	Research & Evaluation	Prevention Intervention & Education	Training	Criminal Justice Interface	TOTAL
Tax-derived approp.			232,461						232,461
TOTAL			232,461						232,461
2. FEDERAL FUNDS NIDA 409 funds	12,134	19,294	6,149	6,162	16,162	42,420	18,827	6,162	127,310
NIDA 410 funds	26,225		267,551						293,776
Other NIDA funds				30,649	187,500		35,955		254,104
TOTAL	38,359	19,294	273,700	36,811	203,662	42,420	54,782	6,162	675,190
CATEGORY TOTALS	38,359	19,294	506,161	36,811	203,662	42,420	54,782	6,162	907,651

TOTAL STATE $ 232,461
TOTAL LOCAL $
TOTAL FED'L $ 675,190

GRANT TOTAL $ 907,651

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TABLE II - STATE PLAN ACTION STRATEGY: EXPENDITURE PROJECTION SUMMARY

List only those funds which you anticipate receiving

1. STATE FUNDS	Administr.	Planning & Coordination	Treatment & Rehabilitation	Information Systems	Research & Evaluation	Prevention Intervention & Education	Training	Criminal Justice Interface	TOTAL
Tax-derived approp.	2,010		215,346						217,356
TOTAL	2,010		215,346						217,356
2. LOCAL FUNDS Non-public funds			4,083						4,083
TOTAL			4,083						4,083
3. FEDERAL FUNDS NIDA 409 funds	14,511	14,751	23,270	3,887	13,887	46,250	19,667	8,887	145,110
NIDA 410 funds	37,200		422,228						459,428
Other NIDA funds				29,535	37,500		38,374		105,409
LEAA			16,737						16,737
Soc. Serv. Adm.			9,000						9,000
TOTAL	51,711	14,751	471,235	33,422	51,387	46,250	58,041	8,887	735,684
CATEGORY TOTALS	53,721	14,751	690,664	33,422	51,387	46,250	58,041	8,887	957,123

TOTAL STATE $ 217,356
TOTAL LOCAL $ 4,083
TOTAL FED'L $ 735,684

GRANT TOTAL $957,123

to drug abuse.

Both funding and reporting for alcohol services and drug services are separate at the Federal and State level. In its present format, the alcohol reporting system does not allow for the incorporation of drug data. Therefore, it is impossible to determine the number of persons receiving drug services in programs that provide primarily alcohol services.

Because most drug programs in Montana are administered by the State, there is little incentive to develop a fee-for-service scale based on the client's ability to pay, as any reimbursements made for services must revert to the State General Fund.

5.0 ESTIMATE OF SERVICE REQUIREMENTS

The estimate of service requirements was taken from the State Plan for Drug Abuse which was prepared by Alcohol and Drug Abuse Division of the Montana State Department of Institutions.[18]

REGION I, Eastern Montana

The Regional Coordinator for alcohol and drug services in Eastern Montana is the Director of the District II Alcohol and Drug Program in Plentywood.

Staff of the Alcohol and Drug Programs are trained primarily to provide alcohol services; therefore, there is a need for training in the area of drug abuse. This training needs to be initiated at the basic level and programmed to continue through to the point where all staff members will be able to meet voluntary certification standards.

There is a need to develop a region-wide awareness and education program in Eastern Montana so that the public is informed on drug services available in their communities.

Drug education in the school system is fragmented. Many of the schools are not sure that it is part of their responsibility to address the problem at all.

REGION II, North Central Montana

A survey conducted in the North Central Region indicated that all counties felt a need for prevention, intervention, education, and public information about drugs.

REGION III, South Central Montana

Rimrock Guidance Foundation has provided a list of needs for the Billings area which is based on staff observation, citizen and media reports and comments from other agencies.

Billings area needs are:

1. A comprehensive community-wide substance abuse prevention effort,

2. Prevention activities by and for youth and family,
3. Increase public awareness of abuse of social, prescription, over-the-counter and illegal drugs,
4. Alternative treatment modalities,
5. Substance abuse training for clergy.

REGION IV, Southwest Montana

Southwest Montana Drug Program describes prevention resources in Southwest Montana as virtually non-existent. SMDP staff members provide some prevention type activities in the form of public speaking engagements and outreach presentations, but staff time is limited and funds are not currently available to SMDP for this type activity. Local school systems do provide some prevention and education within the schools.

The first priority in training for SMDP staff is providing training and education necessary to meet certification standards.

SMDP staff has also identified a need for training in the areas of public relations and fund raising.

REGION V, Northwest Montana

There is a need for prevention, intervention, education, and public information about drugs. This Region has expressed a need to utilize existing alcohol and drug programs in the provision of drug services. Alcohol counselors need education geared toward drug treatment and chemical dependency as they are presently almost totally alcohol oriented.

6.0 RECOMMENDATIONS

1. By 1985, information and referral and prevention and education activities should be developed and implemented in every region utilizing existing alcohol programs as resources to provide such services where there is no single identifiable drug program accessible.
2. At least one counselor in every alcohol and drug program in Montana should receive training specific to drug abuse.
3. Funding for alcohol and drug programs should not be separate at the Federal level.
4. There should be more emphasis on prevention and education rather than treatment.
5. Drug programs and alcohol programs should be combined and be substance abuse or chemical dependency programs.
6. There should be a uniform reporting system for alcohol and drug data.

7. Legislation should be achieved to allow development of a fee-for-service schedule for all state-administered drug programs so that monies received could be budgeted and used for prevention and education activities. Along these lines, employers, unions, and insurance companies should be encouraged to include coverage for all rehabilitative drug services provided in settings other than inpatient.

8. To insure quality care, counselors providing drug services should seek voluntary certification until such time as the legislature acts to make certification mandatory.

9. The Department of Institutions should emphasize and encourage drug education and prevention activities through the school system.

10. Emphasize and encourage training for all rural law enforcement persons and all health care providers in recognizing drug abuse.

GLOSSARY[19]

NARCOTICS - drugs which produce insensibility or stupor due to their depressant effect on the central nervous system. Included in narcotics are: opium, opium derivatives (morphine, codeine, heroin), and synthetic opiates (meperidine, oxycodone, methadone). Cocaine is also considered as a narcotic for law enforcement reasons even though it is actually a stimulant.

BARBITURATES - the most commonly abused sedative. They are used for the treatment of epilepsy, high blood pressure, insomnia, and in the treatment and diagnoses of mental disorders.

TRANQUILIZERS - are generally used to counteract tension and anxiety without significantly impairing mental and physical functions.

STIMULANTS - are drugs which directly stimulate the central nervous system. The most widely known stimulant is caffeine. The most commonly abused stimulant is amphetamines.

HALLUCINOGENS - drugs which distort perception, produce dream images and hallucinations, are known as hallucinogens, psychotomimetics, dysleptics, or psychedelics. Mescaline, peyote, LSD, and STP are the most commonly abused drugs in this classification.

Marijuana is often called "pot" or "grass", and is smoked in pipes, rolled into cigarettes, or eaten in foods. Under Federal law, marijuana is defined to mean "all parts of the cannabis plant except for the stalks and sterilized seeds". All other preparations of the plant, whether of leaves, flowers, hashish, or chemical extracts, are considered various forms of marijuana. In the United States the term marijuana usually refers to a preparation of pulverized leaves, resine, flowers, or a combination of these. Marijuana is used for the primary purpose of attaining a "high". The active ingredient, tretrahydrocannabinol produces time and space perpetual distortions to the user.

FOOTNOTES

1. Drug Abuse, Medical Datamation, Bellevue, OH, 1976, pg. 1.
2. Montana State Drug Abuse Prevention Plan, 1978, Department of Institutions, Alcohol and Drug Abuse Division, pg. 23.
3. First Special Report to the United States Congress on Alcohol and Health, U.S. Department of Health, Education, and Welfare, Government Printing Office, Washington, D.C., 1971.
4. Drug Use in America: Problem in Perspective, Second Annual Report of the National Commission on Marijuana and Drug Abuse, March, 1973, pp. 95-98.
5. Desk Reference for Planners, U.S. Department of Health, Education and Welfare, Public Health Service, Washington, D.C., December 1977, Section L. pg. 23.
6. Ibid, pp. 6-7.
7. Montana State Drug Abuse Prevention Plan, 1978, pg. 53.
8. Ibid, pg. 22.
9. Ibid, pg. 20.
10. Ibid, pg. 26.
11. Ibid, pg. 26.
12. Information provided by Rimrock Guidance Foundation to the Department of Institutions.
13. Report prepared for Alcohol and Drug Abuse Division by Jess Farris, Ph.D., Mental Health Center, Great Falls, Montana.
14. An Introduction to Chemical Dependency Center, Frances Mahon Deaconess Hospital, Glasgow, Montana.
15. Information provided by staff of Chemical Dependency Center in Glasgow.
16. Information provided by Mental Health and Residential Services Division, Department of Institutions.
17. Montana State Drug Abuse Prevention Plan, 1978, pg. 187.
18. Ibid, pg. 25.
19. Drug Abuse: A Game Without Winners, Armed Forces Information Service, Department of Defense, U.S. Government Printing Office, Washington, D.C., 1968, pp. 17-35.

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ACTION TAKEN ON COMMENTS THAT WERE TO BE CONSIDERED BY PLAN DEVELOPMENT COMMITTEE

1. Add #11 under Recommendations page 19:
   Request legislation be achieved to rescind 18 year old drinking age limit to 19, 20, or 21 regardless of legal age in Montana.
   --more appropriate in Alcohol Services Component

2. Mental Health, Drugs and Alcohol should be administered from one division at the State level.
   --Legislative action needed to accomplish this

3. Greater emphasis on prescription drug abuse.
   --I agree, however, there is no data available to explore this avenue

4. Include cost of recommendation #1, page 19.
   --Programs are already funded--training monies are available for this.

*5. Recommendation #4, page 19, should be a management decision of programs - not mandated. (25% of monies into prevention)
   --Reworded

6. Change title of component to Chemical Dependency Services Component.
   --an appropriate time to do this would be next year when alcohol and drug services could be combined

*7. Change recommendation #4 to read: There should be more emphasis on prevention and education rather than treatment.
   --I will change this.

8. Combine recommendation #5 into recommendation #1.
   --Purely semantics - it really makes no difference

*9. Recommendation #7 - add: monies received should be budgeted into state administered programs to be used for prevention

10. Clarify: "education" as addressed in South Central's recommendation. This should be a function of the Department of Institutions

11. Studies should be done to determine what causes drug abuse
   --This component is designed to look at services, not causes.

12. Hospitals should be required to report hospitalization due to drug abuse.
   --Good suggestion but is it practical.

*Incorporated.

REVIEW COMMENT ONLY

4.10

SUMMARY

MENTAL HEALTH SERVICES

This component is designed to provide services either on a private or public basis which will insure a comprehensive mental health program for Montana. Services addressed in this component consist of inpatient, outpatient, emergency, screening and referral, follow-up care, partial hospitalization (other than acute care psychiatric units), services to the elderly and children, halfway houses and other transitional living arrangements, along with some alcohol and drug abuse services.

New treatments and changing societal attitudes have helped move the provision of treatment to more diverse settings, significantly dropping the census at most state mental hospitals. These state institutions must continue to provide services for the chronically nonfunctioning patient and should be seen as a resource to the increasing number of community facilities.

The component reviews programs presently offered by the state hospital, the five community mental health centers, and private practitioners and recommends a coordinated network of services be developed. It is anticipated Montana, like the nation, should anticipate increases in the percent of the population needing mental health services.

In order to reach a goal of availability of services to all Montanans, the component suggests an adequate, long-range funding formula to provide for needed mental health personnel, throughout the 12 administrative districts. The component stresses the least restrictive appropriate care and the development of a comprehensive plan for training of Montanans into mental health manpower shortage areas. By 1980, the MHSA is recommending a full-time mental health planner be on the staff.

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OCTOBER 31, 1978

DRAFT
REVIEW AND COMMENT
ONLY

MENTAL HEALTH SERVICES
(COMMUNITY MENTAL HEALTH CENTERS, PRIVATE PRACTITIONER, WARM SPRINGS STATE HOSPITAL)*

GOALS, OBJECTIVES, AND RECOMMENDED REVIEW CRITERIA

GOAL:

The primary goal of these guidelines is to insure that appropriate mental health services are available to all Montanans when needed.

OBJECTIVES:

1. By 1985, the Community Mental Health Centers, the private practice mental health providers, Warm Springs State Hospital and the local and county program activities should be coordinated into a mental health network to prevent mental illness and to provide care and treatment for the mentally ill.
2. By 1980, a full time mental health planner should be added to the staff of the Montana Health Systems Agency.
3. By 1979, the Department of Institutions, Mental Health and Residential Services Division shall develop a comprehensive, fair, and adequate long-range funding formula that will insure the existence of mental health delivery services on the community level in the State of Montana.
4. By 1985, mental health manpower within each of the 12 administrative districts of Montana shall be increased to include at least one psychiatrist and at least one half the national per capita average of all mental health team members, (psychiatrist, clinical psychologist, psychiatric social worker, psychiatric nurse, other support clinical workers).
5. By 1985, all chronic mentally ill shall be identified, periodically screened, afforded the least restrictive appropriate care and treatment, and given community support services toward psychosocial, physical and mental rehabilitation, including jobs.
6. By 1980, there will be a comprehensive plan for the training and education of Montanans into mental health manpower shortage areas.
7. By 1980, each Health Systems Plan Service component shall include a section analyzing the emotional impact on patients,families and other consumers. Early detection, intervention and positive preventive steps should be described to minimize emotional impairment of the citizens effected.

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*See Acute Care Psychiatric Unit which is a separate component.

8. By 1980 the State Mental Health Administrator should be a qualified mental health professional with direct access to the governor and the legislature.

RECOMMENDED REVIEW CRITERIA FOR MENTAL HEALTH (other than acute care psychiatric units):

1. Mental health professionals, licensed and/or certified, should be accessible to every Montanan within 45 minutes driving time.

2. Each county seat should have mental health services available at least once a week on a regularly scheduled basis.

3. Recipients of mental health services shall have the opportunity to indicate acceptability or not of services.

4. Quality of mental health services shall be determined by outcome studies as well as by process audits and staff competence measures.

5. All admissions to Warm Springs State Hospital and other inpatient psychiatric units shall be screened for appropriateness of the admission.

6. No resident of Montana shall be denied needed appropriate mental health services because of race, color, creed, or financial status.

1.0 Service Description

The State of Montana is, like all states, concerned with the provision of comprehensive health services. The provision of comprehensive mental health care is one component. The provision of services may be private and/or public. The services provided include the following twelve: inpatient, outpatient, emergency, screening and referral, followup care, partial hospitalization, special services to the elderly, children, halfway house and other transitional living arrangements, alcohol and drug abuse.

Those directly providing care are the private practitioner (psychiatrist, psychologist...), the community mental health center, the general acute care hospital (psychiatric),unit and the large mental institution (state or private). The interaction among these providers of care makes it possible to:

---provide mental health services, including the diagnosis, care, treatment and rehabilitation of mentally ill persons;

---conduct research into the causes, treatment, and prevention of mental illness;

---educate the general public as to the nature of mental illness or factors which cause mental illness, and the methods for maintaining sound mental health;

---conduct training for mental health specialities and diciplines.

For the purposes of this plan the mental health of an individual will relate to his/her ability to function in living situations, meeting personal and societal needs. A functioning individual meets basic needs such as shelter, clothing, nutrition, and cleanliness. He/she is interested in learning; exhibits personal independence by acquiring self-esteem, a sense of purpose, a feeling of self-governance, and a perception of the future; acts in a socially appropriate manner; and interacts in socially interdependent relationships, including employment, friendships, and family relationships.[1]

There are many kinds and degrees of mental disorders. Mental disorder is defined as "any organic, mental or emotional impairment which has substantial adverse effects on the individual's cognitive or volitional functions".[2] Seriously mentally ill is defined as "suffering from a mental disorder which has resulted in self-inflicted injury or injury to others, or the imminent threat thereof, or which has deprived the person afflicted of the ability to protect his life or health".[3]

State Mental Hospitals have typically been the treatment facility for the non-functioning, chronic and acutely ill psychiatric patient utilizing custodial care modalities. New treatments and changing societal attitudes, however, have helped to move the provision of treatment to more diverse settings, such as general hospitals, private psychiatric hospitals, community mental health centers, half-way houses, nursing homes, and other facilities. Thus, in most sections of the United States, the census at most state mental hospitals has dropped significantly.

Today state mental hospitals are specialized treatment facilities for the non-functioning, chronically ill, psychiatric patient.

2.0 Current Status of Mental Health Service in Montana

In 1965 the Mental Health Program in the state consisted of five mental hygiene clinics which provided limited outpatient services and Warm Springs State Hospital for residents requiring inpatient psychiatric treatment. Fewer than 12 private practice psychiatrists and a few other private professionals were located in Montana's five largest cities--Billings (Region III), Great Falls (Region II), Butte and Helena (Region IV), and Missoula (Region V). Only Great Falls, Missoula and Billings had psychiatric inpatient units in general hospitals.

The state is now served by five mental health centers, established in the following chronological order:

DATE ESTABLISHED	NAME	REGION	NO. of COUNTIES IN CATCHMENT AREA
December 1, 1967	Eastern Montana Regional Mental Health Center	I	17
January 1, 1971	Western Montana Regional Community Mental Health Ctr.	V	7
September 1, 1971	South Central Montana Regional Mental Health Center	III	11
August 1, 1974	North Central Montana Community Mental Health Ctr.	II	9
November 1, 1974	Southwest Montana Regional Community Mental Hlth. Ctr.	IV	12

There are 49 of the 56 counties in the state which do participate in the Mental Health Center Program. Those not participating are Carter, Treasure, Chouteau, Golden Valley, Powell, Mineral and Gallatin.

The Community Mental Health Centers, the private practice providers and Warm Springs State Hospital are all essential elements of the interlocking network of Mental Health Services for Montanans.

There are currently two programs in the state providing residential services for seriously mentally ill children, Warm Springs State Hospital and Yellowstone Boys Ranch.

Forensic psychiatry is provided by Community Mental Health Centers, private providers and Warm Springs State Hospital when the mental status of a defendant in a criminal proceeding is called into question. The mental health professional is asked to render opinion in regard to:

(a) The ability of the defendant to assist in his own defense;

(b) The capacity of the defendant to understand the proceedings taking place against him;

(c) The ability of the defendant to appreciate the criminality of his conduct;

(d) The capacity of the defendant to conform his conduct to the requirements of the law.

The Treatment Services component of Warm Springs State Hospital houses all treatment units. There are three specialty units - Geriatric, Children and Adolescent, and Forensic. In addition, there are four sub-units of the general psychiatric service. Intake, Short-term, Extended Care and Pre-Release. These units established a phased, progressive movement for patients in the hospital ranging from crisis intervention, assessment, intensive or acute care, extended care and finally a pre-release function in which psychological and medical structure will be reduced to approximate what the patient would encounter in a community situation. This organizational unit, General Psychiatric Services, is designed specifically to return patients to the community and not to hold them on a long-term basis at Warm Springs State Hospital.*

A state hospital will always be needed within the mental health network in Montana to provide care and treatment because there will always be an irreversible minimum of persons who require institutionalization. Warm Springs State Hospital should be coordinated within the mental health network and not considered as a separate entity.

The Lewistown Center for the Aged, Mountain View School for Girls, Pine Hills School for Boys, Galen State Hospital, public and private nursing homes, general acute care hospital psychiatric services, half-way houses, group homes,

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*Excerpted from a memorandum from Lawrence M. Zanto to George L. Bousliman, dated May 25, 1978, subject: Explanation of Warm Springs State Hospital reorganization.

and a variety of public and private organizations and groups are also delivering mental health services and are included in the mental health network. A truly coordinated effort involves all entities of the mental health service delivery system.

Emergency mental health services are provided through community mental health centers and by various private psychiatrists, general hospital emergency services, and other community resources, as mandated by PL 94-63. The 1979 Montana State Plan for Mental Health Services states on Page 40:

This service provides immediate health care and evaluation for persons in crisis on a 24-hour-a-day, seven-day-a-week basis. The regional mental health centers, at least in the regional central offices, have a mental health professional on call for either consultation or direct service as needed.

These services need to be interfaced with existing emergency medical services throughout the state, as fully detailed in the Emergency Medical Services component of the Health Systems Plan.

3.0 PLAN FOR THE FUTURE AND ESTIMATE OF NEED

In a recent report by the President's Commission on Mental Health it is indicated that, "for the past few years the most commonly used estimate has been at any one time 10 percent of the population needs some form of mental health service. There is new evidence that this figure now is nearer to 15 percent of the total population."[4] It is thought Montana will have the same incidence of need as the nation.

"Statistics recently compiled by the National Institute of Mental Health indicate that an increase in the number of persons with mental disorders could occur during the next decade. Two factors support this prediction: 1) projected large increases in the population of age groups characterized by high incidence rates of mental disorders and high admission rates to various types of psychiatric facilities, and 2) improvements in medical and psychiatric care that tend to increase the life span of persons with mental disorders."[4]

To effectively and efficiently develop a comprehensive plan for mental health services and to avoid the duplication of planning efforts, it is recommended that a full time mental health planner be added to the Health Systems Agency staff.

There is a need for a needs assessment of the total state addressing alternative services; care for the involuntarily committed, criminal patients, all age groups, and minorities. Statewide health needs, resources, policies and authorities need to be addressed.

Identified problem areas which need to be addressed by the planning effort and particularly by the Mental Health and Residential Services Divison are:

--Sparsity of population and its affect on transportation;

--Lack of uniform funding formula;

--Recruitment and retention of professional staff, particularly for underserved and unserved areas;

--Increased administrative and accountability paperwork requirements;

--Existence of numerous review boards and the requirement of answering to a multitude of separate agencies;

--Demands for increased services, which require unavailable increased funding;

--Insufficient interagency coordination at the local and state levels and between the Community Mental Health Centers and Warm Springs State Hospital;

--Inadequate job training and continuing education opportunities;

--Insufficient understanding and non-acceptance of mental health services on the local level;

--Representatives on the governing boards are not always knowledgeable about mental health services and issues;

--Inadequate community mental health services and facilities for all citizens, including minorities, children, elderly, developmentally disabled;

--Confusion about the future role of Warm Springs State Hospital;

--Contradictory state and federal legislation mandating care and treatment and rights of patients, also, restricting funding to provide those services;

--Program budgeting at Warm Springs State Hospital is distributed by Care/Custody, Developmental Services, Community Related Services, Administrative Services--multiple categorization of services at the Hospital;

--Commitment laws are often a barrier to persons in need and receiving care;

--Often the expectations of Community Mental Health Centers are to meet all patients' needs for housing, food, transportation, and recreation as well as responding to psychiatric need.

All mental health providers within Montana must meet all applicable state requirements and are expected to meet national, professional society standards. In addition all community mental health centers in Montana are required to adhere to applicable Federal Regulations.

BGH/met
10/24/78

ADDENDUM I

The following mission statements are taken from Warm Springs State Hospital and one each from the Mental Health Centers. The complete lists are on file at the Bureau of Health Planning of the State Department of Health & Environmental Sciences as well as at the Montana Health Systems Agency and are available to the public.

Warm Springs State Hospital

A. Program Mission: To provide individualized evaluation, care and intensive psychiatric treatment for youth and adults who are, or who may be, seriously mentally ill and who have been duly admitted voluntarily, involuntarily, or by Court Order (Articles II & XII - Montana State Constitution; Revised Codes of Montana 1947: 10-13-1222; 38-1-120; 38-13; 80-24; 95-5).

B. Current Goals:

1. To provide an active, multidisciplined approach to meeting the needs of each Warm Springs State Hospital patient through individualized treatment plan developed in regard to each patient, within an appropriate physical facility which meets life-safety codes and accreditation standards in the least restrictive environment.

2. To maximize coordination and communication between Warm Springs State Hospital and institutions, third party purchasers of care, private and public providers and aftercare programs.

3. To provide program evaluation to insure that costs are minimized and quality of care is maximized.

Community Mental Health Centers

Eastern - Region I

To develop community mental health programs in Region I to be comprehensive enough to provide all the alternatives for the treatment of the mentally ill in the state on a community level.

North Central - Region II

To provide appropriate comprehensive mental health services for all within the Region.

South Central - Region III

To provide a complete spectrum of community-based emergency, crisis preventative, and aftercare services for Region III.

Southwestern - Region IV

To determine the cost of services delivered in Region IV by county, by satellite, by discipline and by program, to improve all services delivered in an effective and efficient manner.

Western - Region V

To provide comprehensive mental health services to the residents by offering programs for prevention of social and emotional maladjustment, as well as develop broad-based community interest in, and support for, services.

TABLE 1

NUMBER OF CLIENT ENCOUNTERS BY TYPE OF CARE FOR FY 1977

	N.W.	S.W.	S.C.	N.C.	E
# Inpatients	264	30	252	251	413
# Inpatient Encounters (patient days)	1086	125	2959	1642	1439
Average Length of Stay	4 days	9 days	11.74 days	6.5 days	3.48 days
# Partial Hospitalization	Day Care 144	Day Care 140	225	165	442
# Partial Encounters	3920	3900	7594	8256	2158
Average Length of Stay	27 days		33.75 days	50.04 days	4.88 days
# Outpatients	1969		4425	3948	5178
# Outpatient Encounters	9210	21,600	32,882	18,399	9201
Average Length of Stay	4.68 sessions		7.43 sessions	4.66 sessions	1.77 sessions
# Emergency Patients	838	840		327	497
# Emergency Encounters	838	840	1682 sessions	557	497
Average Length of Stay					
Home Visits	485	150	1972 sessions	3639	888
Day Care		3900	53 patients		
After Care		342	224		
Other					
Group Home		35	41		
Total # Patients Seen	3,700	3,000	6,902	4,691	6,530
Total # Encounters	15,054	21,820	47,130	32,493	14,183

TABLE 2

NUMBER OF CLIENT REFERRALS TO OTHER FACILITIES FY 1977

	N.W.	S.W.	S.C.	N.C.	E.
Warm Springs State Hospital	21	43	47	12	12
Other Mental Health Facilities	14	3	29	0	23
Medical Facility	2	2	5	7	1
Nursing Home	7	2	9	2	5
Social or Community Agency	51	4	90	137	36
Private Practice Professional	13	2	38	2	7
Non-psychiatric M.D.	30	2	14	34	20
Court, Law Enforcement	90	5	48	27	11
School System	33	12	71	39	17
Other Known Referrals		12			31
Unknown		8			6
TOTAL	261	95	85	260	169

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WARM SPRINGS STATE HOSPITAL

PART I

TYPE OF COMMITMENT FOR PATIENTS IN WARM SPRINGS STATE HOSPITAL FOR FISCAL YEAR 1977

Length of Stay Under 1000 Days (All Types of Commitment): 141

Voluntary: 126
Involuntary: 115
CO/Evaluation 70
CO/Treatment 143
YCO: –
Eleven Emergency --- 560
Emergency Detention: 30
Other (Specify): One Institutional Transfer -- 948
One Standard -- 726
Average Length of Stay for Patients over 1000 Days: 8,121
Overall Average Length of Stay: 2,982

PART II

WARM SPRINGS STATE HOSPITAL SUMMARY FOR Fiscal Years 1976/1977.

*Beginning
1. Number of Patients in Residence on/July 1, 1975: 904
Number of Patients in Residence on June 30, 1976: 668
Net Population Reduction: 236
*beginning
Number of Patients in Residence on July 1, 1976: 668
Number of Patients in Residence on June 30, 1977: 490
Net Population Reduction: 178

2. Average Daily Census:

Fiscal Year 1976: 772
Fiscal Year 1977: 548

3. Numberof Patient Days of Care Rendered FY 1976: 282,578
Numberof Patient Days of Care Rendered FY 1977: 200,727

4. Total Number First Admissions FY 1976: 287 FY 1977: 271
Total Number Readmissions FY 1976: 347 FY 1977: 285
Total Number Returns (Other) FY 1976: 823 FY 1977: 765
TOTAL ADMISSIONS FY 1976: 1,457 FY 1977: 1,321

5. Total Number Direct Discharges FY 1976: 513 FY 1977: 444
Total Number Discharges to Resthome FY 1976: 2 FY 1977: 109
Total Number Discharges to Placement FY 1976: 0 FY 1977: 36
Total Number Home Visits FY 1976: 683 FY 1977: 556
Total Number Home Visit Resthome FY 1976: 174 FY 1977: 21
Total Number Home Visit Placement FY 1976: 39 FY 1977: 24
Total Number Escape .... FY 1976: 123 FY 1977: 163
Total To Other Hospitals ....FY 1976: 122 FY 1977: 97
Total To Other Institutions ......FY 1976: 2 FY 1977: 24

Total Number Deaths .... FY 1976: 35 FY 1977: 20
Total Number Conditional Releases FY 1976: 0 FY 1977: 5
TOTAL RELEASES FY 1976: 1,693 FY 1977: 1,499

6. Regional Breakdown First Admissions:

RI (Eastern):	FY 1976:	23	FY 1977:	19
RII (NorthCentral): ...	FY 1976:	62	FY 1977:	54
RIII (Southcentral): ..	FY 1976:	37	FY 1977:	38
RIV (Southwestern)	FY 1976:	107	FY 1977:	93
RV (Northwestern):	FY 1976:	58	FY 1977:	67
		287		271

7. Percentage of Occupancy FY 1976: 72% FY 1977: 64%

8. Length of Stay for Patient Admitted & Discharged
FY 1977 53

PART III - EXPENDITURES/COSTS FY 1976/FY 1977

1. All Categories of Cost/Expenditure:

FY 1976 Daily Expenditure per Resident Patient Per Day: $ 49.69
FY 1977 Daily Expenditure per Resident Patient Per Day: $ 69.14

2. Bare Bones Cost/Expenditure (Actual Expenditure for each Fiscal Year Minus Central Payroll, CCMHCs, Capital Expenditures, Federal Funds. Other than Revenue Sharing, Canteen & Recreation Hall, LPN Training (State Portion) Plus depreciation Divided BY Number of Patient Days).

FY 1976 Daily Expenditure per Resident Patient Per Day: $ 46.23
FY 1977 Daily Expenditure Per Resident Patient Per Day: $ 64.11

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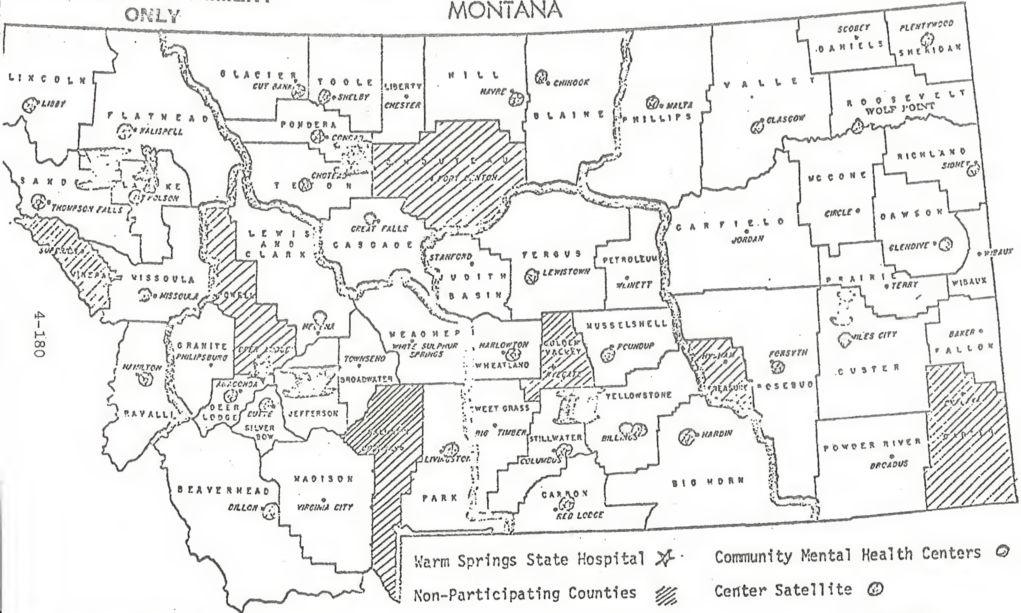
MENTAL HEALTH REGIONS IN MONTANA



4-180

No. 1052 — County Outline Map
STATE PUBLISHING COMPANY
Helena

May 1978

Legend symbols should be clear.

SOURCES CITED

1. Survey submitted by Warm Springs State Hospital
2. Section 38-1302 (5), Revised Codes of Montana
3. Section 38-1302 (14), Revised Codes of Montana
4. Report to the President from the President's Commission on Mental Health, Volume 1, 1978, page 8.

CHAPTER 5

PRIMARY CARE SERVICES

Primary care is the type of health care with which most people are familiar. It is usually the entry point into the delivery system. It focuses on ambulatory care and those services which require a high frequency of utilization, such as routine preventive care, diagnosis and treatment of minor physical and mental illnesses.

In this plan, three different components of primary care are addressed. These are:

. Primary Health Care Personnel

. Dental Personnel

. Emergency Medical System

The first two are basically manpower studies with emphasis on educational programs and establishing HSA policy toward the potential use of National Health Corps Personnel in Montana. The latter is a programmatic service subject, in part, to HSA review.

Table 1 shows the general categories in which these services can be classified and the settings in which they are typically found. None of these components are addressed in the National Guidelines.

Because of the nature of primary care, it can be classified into all areas where direct patient care is provided. Emergency medical services do not include the areas of habilitation and rehabilitation and maintenance services.

The primary care services are typically found in the ambulatory setting. Emergency Medical Services also have a mobile component (ambulances) and a short-stay component (hospital emergency rooms). The methods of dispatching these services can be classified as free standing if law enforcement or other public agencies are used. If quick response units are set up, they may be classified as community based.

	CATEGORIES OF SERVICE							SETTINGS						
SERVICE	Community Health Promotion	Prevention & Detection	Diagnosis & Treatment	Habilitation & Rehabilitation	Maintenance Services	Support Services	Enabling Services	Community	Home	Mobile	Ambulatory	Short-Stay	Long Stay	Free Standing Support
Primary Health Care Personnel	x	x	x	x	x						x			
Dental Personnel	x	x	x	x	x						x			
Emergency Medical Services	x	x	x					x		x	x	x		x

Table 1

Subjects, categories of service, and settings addressed in the Primary Care Service components.

5.1

SUMMARY

PRIMARY HEALTH CARE PERSONNEL

This component estimates the state's future needs for primary health care personnel, examines the current problems and develops a strategy for alleviating those problems. Geographic maldistribution and specialty maldistribution are discussed as primary health care problems. Three types of professionals, physicians, osteopaths and nurses are included in the analysis.

Ten counties are categorized to have critical manpower shortages, and are listed. This was concluded by using the population to physician ratio of 3500:1. These counties may qualify for special federal programs (NHSC. RHI, HURA) if other indications of need are significant.

In order to assure residents statewide of reasonable access to quality primary care, the MHSA goal, the following population to physician levels should be attained:

General Practitioner	2500:1
Internist	10,000:1
Pediatrician	10,000:1
Obstetrician and Gynecologist	10,000:1

The state averages as currently as follows:

General Practitioner	2622:1
Internist	6020:1
Pediatrician	15,359:1
Obstetrician and Gynecologist	13,935:1

Eastern Montana currently has the largest need for primary care personnel. Strategies must be found and implemented to address this problem.

The MHSA recommends; continued support for WICHE and WAMI and the phased-in development of three family practice residency programs, and programs for primary care education of nurses. The liberal policy toward the designation of critical manpower shortage areas and the recruitment of National Health Service Corps personnel should be supported with the following conditions: broad based community support, emphasis on family practitioners and restrictions of placements to actual shortage areas.

Approved by HSA Governing
Board, July 28, 1978

PRIMARY HEALTH CARE PERSONNEL

GOALS, OBJECTIVES AND RECOMMENDATIONS

GOAL

The goal of this set of guidelines is to assure that the residents of Montana have reasonable access to quality primary health care. On a statewide level, the following population to physician levels should be attained:

- General/Family Practitioner for every 2,500 persons
- Internist for every 10,000 persons
- Pediatrician for every 10,000 persons
- Obstetrician and Gynecologist for every 10,000 persons

The currently observed ratios for these primary care physicians are shown in Table 1.

Area	GP/FP	Int. Med.	Ped.	Ob/Gyn.
Northwestern	2,607	4,368	13,438	12,479
North Central	3,420	7,004	16,344	14,710
Southwestern	2,115	7,491	14,983	16,345
South Central	3,024	4,320	16,800	9,450
Eastern	2,373	19,940	33,233	33,233
STATE AVERAGE	2,622	6,020	16,359	13,935

TABLE 1 - Current Ratio of Population per Primary Care Physician in Each Subarea

OBJECTIVES

In concert with this goal, the following objectives have been established:

- By 1985, every county of over 2,000 persons should have at least one general/family physician.
- By 1985, each community of over 5,000 population and serving a catchment area of at least 10,000 people should have at least one general internist, pediatrician and obstetrician/gynecologist.
- The use of collaborative practices, limited to a one-to-one basis, between physicians and nurse practitioners in primary care settings should be encouraged.

LONG RANGE ACTIONS

To achieve these goals and objectives, it appears that a combination of five manpower strategies should be followed to attract primary care manpower, especially family practitioners, to the underserved rural areas of the state. They are:

1) Continue to support both the WICHE and WAMI programs for educating Montana students. These programs should be evaluated biannually to see if they are assisting in resolving Montana's medical manpower problems. (Cost - $1.8 million /year.)

2) Support the phased in development of three family practice residency programs in Montana. When fully operational, these programs could provide the state with as many as nine family practice physicians a year. (Cost - $450,000 a year when all three are fully operational.)

3) Support the Montana programs for educating nurses in the specialty of primary care.

4) Support a liberal policy toward the designation of critical manpower shortage areas and the recruitment of National Health Service Corps personnel with the following conditions:

   a) Any new areas wishing critical manpower shortage area designations must show broad based community support (i.e., requests from county commissioners, requests from local medical associations, or community petition).

   b) Emphasis should be placed on family practitioners who have completed residency training programs.

   c) Placement should be restricted to actual shortage areas.

   (Cost - $280,000 per year assuming eight NHSC physicians can be placed.)

5) Support the recruitment of primary care physicians and nurses by Rural Health Initiative Programs.

1.0 Background

The purpose of this component is to estimate the state's future needs for primary health care personnel, examine the current problems being observed and to develop possible strategies for alleviating these problems. Overall, the primary health care manpower problems can be categorized into two groups - geographical maldistribution and specialty maldistribution. Geographical maldistribution implies these providers are not located in the areas where they are most needed. Specialty maldistribution means there are not a sufficient number of personnel in general practice, family practice and the primary care specialties. Of course, these two problems are interrelated.

Primary health care is defined as: a) the care the consumer receives at the point of contact with the health care system; and b) the continued care of the individual as an ambulatory consumer. The care includes a) the identification, management and/or referral of health problems; and b) the maintenance of the consumer's health by means of preventive and promotive health care actions.

In addressing primary health care personnel, three different types of health professionals are included:

- Physicians (Medical Doctors)
- Osteopaths (Doctors of Osteopathy)
- Nurse Practitioners

As defined by the Medical Practice Act, the practice of medicine means the "diagnosis, treatment, or correction of, or the attempt to, or the holding of oneself out as being able to diagnose, treat, or correct human conditions, ailments, diseases, injuries, or infirmities, whether physical or mental, by any means, method, devices, or instrumentalities." 1)

Physicians are licensed through a board of medical examiners which consists of seven members. Before granting a physician's certificate to practice medicine the board requires that the applicant be a citizen of the United States; be of good moral character; is a graduate of an approved medical school; has completed, or has had experience or training equivalent to a one year internship; and passes an examination administered by the board.

Osteopaths (D.O.'s) are graduates of Osteopathic schools and in most states are licensed separately from Medical Doctors. For several years, Montana restricted a D.O.'s practice to prescribe drugs and perform surgery. However, in 1973 the law was amended to grant full practice rights (i.e., the same as those granted to M.D.'s) for D.O.'s who graduated since 1955 and passed the FLEX examination (an examination given to graduates of foreign medical schools before they can be licensed).

In this component, emphasis is being placed upon primary care physicians. Primary care physicians are a subgroup of all physicians. Although many definitions are used to identify these physicians, this document will use one employed by the Department of Health, Education, and Welfare which indicates a primary care physician is one who practices in one of the four major primary care specialties - general or family practice, general internal medicine, general pediatrics and obstetrics and gynecology.2)

The definition of a Nurse Practitioner, according to the American Nurses Association Council of Primary Health Care Nurse Practitioners states:

> The nurse practitioner is an R.N. who is a primary health care provider directly responsible and accountable to the consumer, and who is prepared through a formal organized educational program to coordinate and deliver comprehensive, continuous personalized care.

The nurse practitioner already possesses a license to practice nursing and is legally liable for his/her own practice. The law does not place the registered nurse under the direct supervision of any other health discipline. Nursings relationship with medicine must of necessity be one of collaboration, consultation, and referral if comprehensive care is to be provided.

We quote the definition of the practice of professional nursing from Montana Law 66-1222(3)(a), RCM 1947:

> "The practice of professional nursing means the performance for compensation of any act in the observation, care and counsel of the ill, injured or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or as prescribed by a person licensed in this state to prescribe such medications and treatments; requiring substantial specialized judgement and skill and based on knowledge and application of the principles of biological, physical and social science."

Another personnel category, the physician assistants, is not addressed in this document. Physician assistants are not legally recognized in this state according to the Attorney General's opinion of August 28, 1975.4) Furthermore, there does not appear to be any wide support to legalize physician assistants in this state.

2.0 Description of the Current Situation

2.1 Physicians

The increase in the number of physicians practicing in Montana between 1960 and 1974 is shown in Table 2. Overall the number of physicians has increased during this period, however, the number of primary care physicians decreased. The distribution of physicians within these groups and the population to physician ratios indicate the same conclusions - a trend toward increased specialization.

During the past five years, Montana has licensed 53 new physicians a year. An examination of these newly licensed physicians shows the following statistics:

- Between 60 and 70 percent of the physicians licensed during this period are practicing in Montana.
- The number of newly licensed physicians has increased almost every year. The number licensed in 1977 is approximately double that observed in 1973.
- Between 20 and 30 percent of the newly licensed physicians practicing in Montana are general or family practitioners. Between 20 and 33 percent are primary care specialists (internists, pediatricians, and ob/gyns).
- About three percent of the physicians licensed during this period practiced in Eastern Montana.

Table 3 shows the number in December 1977 of active physicians, the overall population to physician ratio, the number of general and family practitioners, the number of other primary care specialists, and the population to primary care physician ratios by county and subarea. The latter ratio is a basic criteria to determine whether or not the area can qualify as a critical medical manpower shortage area and is, therefore, eligible for National Health Service Corps (NHSC) physicians.

Table 3 illustrates the maldistribution of physicians in Montana. The rural counties have a substantially higher population to physician ratio. The physicians in these counties are also more likely to be family practitioners. Many counties, especially in Eastern and South Central Montana, have only one or two physicians. In recent years, four hospitals in these small communities have been threatened with closure because of the loss of their only physician. Roundup (South Central) had to close its hospital; Baker (Eastern) lost its only physician but attracted two others after a great deal of publicity; Philipsburg (Southwestern) and Jordan (Eastern) are currently threatened with closure for the same reason. One of the goals of this plan is to develop a strategy to bring more medical coverage stability to these rural areas.

	Specialty Grouping	YEAR 1960	1965	1969	1974
Number Physicians	All Direct Patient Care	593	625	660	692
	General/Family Practice	236[1]	276	249	218
	Primary Care[2] Specialists	199	184	206	209
	Non Primary Care	152	165	204	257
	Unknown	6	--	1	8
%	All Direct Patient Care	100%	100%	100%	100%
	General/Family Practice	39.8%[1]	44.2%	37.7%	31.5%
	Primary Care[2] Specialists	33.6%	29.4%	31.2%	30.2%
	Non Primary Care	25.6%	26.4%	30.9%	37.1%
	Unknown	1.0%	--	0.2%	1.2%
Population To Physician Ratio	All Direct Patient Care	1138	1123	1051	1062
	General/Family Practice	2860[1]	2557	2787	3372
	Primary Care[2] Specialists	3391	3837	2787	3517
	Non Primary Care	4441	4279	3401	3860

(1) The increase in the number and proportion of General and Family Practitioners between 1960 and 1965 was due almost entirely to a change in specialty designation by some physicians from General Surgery to General Practice.

(2) In the original study, primary care specialists included General Internists, Pediatricians, OB/GYN and General Surgeons.

TABLE 2 - Number of Physicians in Direct Patient Care in Montana, Distribution of Specialty Groupings, and Population to Physician Ratios for Selected Years

SOURCE: Lawrence, D. & D. Cherkin, "The Physician Manpower Experience in Washington, Alaska, Montana and Idaho, 1960-1974, Department of Health Services School of Public Health & Community Health, University of Washington, Seattle, Washington, July, 1973.

Subarea	County	Number Active Non-Federal Physicians	1976 Pop. Per Physician	Number Active General Practice (Family Practice) Physicians	Internal Medicine	Pediatrics	OB/ GYN	1976 Pop. Per Primary Care Physician
North-Western	Lincoln	11	1491	7	1	1		1822
	Flathead	70	649	26	8	2	5	1164
	Sanders	5	1600	4				2000
	Lake	12	1450	6	1			2486
	Mineral	2	1750	2	-	-	-	1750
	Ravalli	13	1423	6	2			2643
	Missoula	148	442	16	28	10	9	1040
SUBTOTAL		263	664	67	40	13	14	1364
North Central	Glacier	9	121	5				2180
	Toole	5	1060	4				1325
	Pondera	5	1400	3				2333
	Teton	3	2033	2	1			2033
	Cascade	139	601	17	17	8	9	1639
	Chouteau	3	2067	2				3050
	Hill	20	905	7	3	1	1	1508
	Blaine	3	3333	2				3700
	Liberty	2	1250	1				2500
SUBTOTAL		189	778	43	21	9	10	1772
South-Western	Beaverhead	7	1171	4				2050
	Madison	4	1350	3				1800
	Gallatin	61	613	25	4	3	4	1038
	Lewis & Clark	77	493	19	12	6	4	926
	Broadwater	2	1550	2				1550
	Jefferson	4	1725	2				3450
	Meagher	1	2200	1				2200
	Silver Bow	57	721	10	7	3	2	1868
	Deer Lodge	23	634	9				1622
	Powell	5	1520	4				1900
	Granite	1	2700	1				2700
	Park	12	1050	5	1		1	2100
SUBTOTAL		254	708	85	24	12	11	1362
South Central	Fergus	15	867	8				1625
	Petroleum	--	--	-	-	-	-	--
	Judith Basin	0	--	-	-	-	-	--
	Wheatland	2	1250	1				2500
	Golden Valley	--	--	-	-	-	-	--
	Musselshell	1	4400	1				4400
	Sweet Grass	2	1600	2				1600
	Stillwater	3	1733	3				1733
	Carbon	5	1660	5				1660
	Big Horn	7	1514	4			1	2120
	Yellowstone	189	527	25	35	9	15	1186
SUBTOTAL		224	675	50	35	9	16	1375
Eastern	Valley	8	1675	6				2233
	Daniels	2	1600	2				1600
	Sheridan	2	2750	2				2750
	Roosevelt	10	1050	7				1500
	McCone	1	2700	1				2700
	Garfield	2	900	2				900
	Richland	9	1144	4				2575
	Dawson	10	1120	5	2	1		1400
	Wibaux	--	--	-	-	-	-	--
	Rosebud	9	1100	8				1238
	Treasure	--	--	-	-	-	-	--
	Powder River	1	2500	1				2500
	Custer	21	619	2	3	2	3	1300
	Prairie	2	850	2				850
	Phillips	1	5500	1				5500
	Fallon	3	1300	2				1950
	Carter	1	1800	1				1800
SUBTOTAL		80	1246	42	5	3	3	1881
STATE TOTAL		1010	851	287	125	46	54	1679

TABLE 2 - Active Physicians and Primary Care Specialists in Montana by County and Subarea. (September 27, 1978)

SOURCE: Unpublished data from the Montana Data Management System

In Montana, most of the Osteopaths (D.O.'s) can be considered general practitioners. Nineteen D.O.'s maintain an active license, but only seven have graduated since 1955, taken the FLEX examination and have full practice rights in Montana.[5,6] Five of these are federal employees - three at the USAF hospital at Malmstrom Air Force Base, Great Falls; one with the Indian Health Service; and one with the National Health Service Corps. The NHSC D.O. and the two D.O.'s with full practice rights are included in the figures in Table 3. It appears, however, that many small hospitals in Montana have overlooked the possibility of recruiting Osteopaths when searching for a physician for their communities.

It should be noted that the median age of Montana physicians is not significantly different from national figures and has dropped somewhat since 1960. The average age of physicians in Montana is 45.9 years; the national average age in 1973 was 45 years. In 1960 the average age in Montana was 47.0 years. A ten percent sample of the general and family practitioners indicates that they are somewhat older - 49.6 years. Consequently, it appears that age, in general, is not a big concern in planning for Montana future physician needs. It does become considerably important, however, when the individual community's only physician is in his/her sixties.

The primary care specialists (Internists, Pediatricians, and Ob/Gyns) are, for the most part, located in the larger cities. One reason for this is that they need a larger population base to maintain their specialty practices. Since this data was compiled, Miles City (Custer County in Eastern Montana) has lost its Pediatrician and Ob/Gyn physicians and has not been able to recruit replacements. This leaves almost all of the Eastern Subarea without primary specialty care.

The distribution of non-primary care physicians by subarea is presented in Table 4. Again, these physicians are primarily located in the population centers due to the nature of their practices. General Surgeons are the most commonly found specialists in the smaller communities. In many of the rural areas, the surgeons staff more than one hospital in the region to give more accessibility to the population. Similarly, the pathologists and radiologists in the rural areas have contracts to serve several hospitals.

2.2 Physician Education Programs in Montana

Montana, having no medical school located within its borders, is at a disadvantage when trying to develop manpower policies to redistribute physician resources. In an effort to supply the state with physicians and give Montana students an equal educational opportunity to get into medical school, the state has participated in two educational programs - the WICHE (Western Interstate Commission for Higher Education) Student Exchange Program and the WAMI (Washington, Alaska, Montana, and Idaho) Program.

	TOTAL	allergy	anesthesiology	cardiovascular disease	dermatology	emergency medical	general preventive medicine	nephrology	neurology	occupational medicine	ophthalmology	oforhino-laryngology	pathology	pathology clinical	psychiatry	psychiatry, child	public health	pulmonary disease	radiology	radiology diagnostic	radiology theraputic	surgery, general	surgery, neurological	surgery orthopedic	surgery, plastic	surgery thoracic	surgery urological	other specialty
Montana	438	2	41	2	11	4	1	1	6	1	35	18	27	1	29	1	3	1	51	2	1	98	9	45	3	5	15	25
Eastern	18		1								1	3	2		2				2			7						
North Central	85		10		2	1			1		7	2	4	1	4				13		1	19	3	9		1	3	4
Northwestern	121		11	2	4	2			3	1	8	4	7		8	1			12			25	2	15	1	2	4	9
South Central	104	1	11		3	1	1		2		10	4	8		6				10			18	4	10	2	2	3	8
Southwestern	110	1	8		2			1			9	5	6		9		3	1	14	2		29		11			5	4

TABLE 4 - Physician Specialists in Montana

SOURCE: Unpublished data from the Montana Data Management System

The WICHE Student Exchange Program is designed to increase and improve the opportunities of Western state students to continue their education in professional fields. While a student's WICHE certification will not guarantee his acceptance into a receiving medical school, he/she is given preference over other out-of-state applicants. Under this arrangement, the state's obligation is to pay a prearranged amount for each student which is approximately equal to the school's out-of-state tuition.

Montana has been participating in the WICHE Program since 1953. During this time, 192 Montana students went to medical school under this program. Of those students graduating before 1970 who could be tracked, (43 of the 55 graduated could be followed) nine (21 percent) were practicing in Montana.5)

At the present time, there are 36 medical students from Montana in the WICHE Student Exchange Program - ten being in the 1977-78 freshmen class. The 1978-79 budget for these students is $444,000. Thus, the cost of the program is $12,333 per student per year.

The WAMI Program is a regional medical education program serving the states of Washington, Alaska, Montana, and Idaho which is headquartered at the University of Washington. In this program, students receive the first year's training at a school in their state. In Montana's case, the school is Montana State University at Bozeman. The next two years are spent at the University of Washington's Medical School. Six weeks clerkships in the four-state area are offered to third and fourth year students. In Montana, four clinical sites have been established - Billings (Internal Medicine), Missoula (Internal Medicine, Great Falls (Pediatrics), and Kalispell/Whitefish (Family Practice). The intent of these clerkships is to give these students experience in actual clinical settings.

Montana has been participating in the WAMI Program since 1975. Under current provisions, 20 students a year are accepted in the program from Montana. Whether or not a student is accepted depends upon the student's academic record; home towns are not considered by the selection committee in Montana. On the other hand, an analysis of the home towns of the students in the program shows a wide geographical distribution generally representative of the entire state.

Since the first WAMI supported students are now graduating, it is too early to investigate the number of students who return to practice in Montana, or what specialties they have chosen. It has been argued that since they receive part of their education and clinical training in Montana, they will be more apt to return to practice.

To support this program, the state has allocated 1.4 million dollars per year - a cost of $18,421 per student per year.

Table 5 is presented to address the "equal access to education" issue. It shows that without a separate medical school, Montana students have a somewhat less chance of being accepted into medical school. The population per medical student ratio in Montana for the period between 1969 and 1976 is 21,926. Comparable ratios for nearby states are between 10,000 and 18,000 for all states except Washington, which is higher than Montana's ratio.

The impact of WAMI Program increasing admissions can be seen starting with the 1975 class. On the other hand, it is noted that students are not just relying on the WAMI Program for medical school. For example, in the 1975 class, 38 Montana students were accepted - 20 in WAMI, 5 in WICHE, and 13 in other medical schools not participating in these programs. The average Montana applicant in 1975 applied to 9.5 schools - up from 7.8 applications per applicant in 1967. 6,7)

2.3 Residency Programs

At the present time, there are no residency programs in Montana. There appears to be a great deal of interest expressed in starting one, two, or three Family Practice residency programs in the state. These would probably be located in Missoula, Billings, and Great Falls. The latter city appears to be the least interested at this time.

Several studies have shown that the location of the physician's residency program plays a large role in determining where he practices. For example, the probablity of a physician remaining in the state of his birth (being educated elsewhere) is about 25 percent. The probability of remaining in the state where he took his residency is about 75 percent and the probability of remaining in the state where he was both born and took his residency is 78 percent.

For Montana, the minimal number of students who could be trained in any one program is 12. It's annual budget would be approximately $300,000 per year for an annual cost of $25,000 per resident. After each program becomes operational it will probably generate about half of the budget through patient charges.

Present thinking calls for a relationship to be developed with the Department of Family Practice at the University of Washington. The program is to be phased in one city at a time and the first year's training may be given to residents in Spokane and the next two in either Billings or Missoula - whichever site is picked to be first. Eventually all three years would be in Montana.

2.4 Organized Physician Recruitment Programs in Montana

A number of physician recruitment programs have been established in Montana. Besides individual community efforts at the local level, these include:

		Total Applicants	Accepted	% Accepted	Population per Medical Student Accepted
	1969-70	85	27	32	25,703
	1970-71	69	33	48	21,042
	1971-72	72	29	40	24,483
	1972-73	106	38	36	18,921
	1973-74	103	28	27	25,750
	1974-75	93	33	36	22,273
	1975-76	108	41	38	18,243
Total (Average)	1969-75	636	229	36	21,926

State	Average Population Per Medical Student Accepted (1969-1975)
Colorado	18,245
Oregon	18,681
Utah	12,080
Washington	22,225
North Dakota	10,258
South Dakota	12,156

TABLE 5 - A Comparison Between the Population per Medical Students for Montana and Nearby States With Medical Schools.

SOURCES:

1. Stritter, et al, "U.S. Medical School Applicants, 1969-70", Journal of Medical Education, Vol. 46, Jan. 1971, p. 40.

2. Dubé, et al, "Study of U.S. Medical School Applicants, 1970-71", Journal of Medical Education, Vol. 46, Oct. 1971, p. 856.

3. Dubé, et al, "Study of U.S. Medical School Applicants, 1971-72", Journal of Medical Education, Vol. 48, May 1973, p. 413.

4. Dubé, et al, "Study of U.S. Medical School Applicants, 1972-73", Journal of Medical Education, Vol. 49, Sept. 1974, p. 860.

5. Dubé, et al, "Study of U.S. Medical School Applicants, 1973-74", Journal of Medical Education, Vol. 50, Nov. 1975, p. 1023.

6. Dubé, W.F., and Davis G. Johnson, Ph.D., "Study of U.S. Medical School Applicants, 1974-75", Journal of Medical Education, Vol. 51, Nov. 1976, p. 838.

7. Gordon, Travis L., "Descriptive Study of Medical School Applicants (1975-1976)", DHEW Publication No. (HRA) 77-52, Feb. 1977, p. 24.

- Health Systems Research Institute (Out of Salt Lake City),
- The Montana Medical Association's efforts,
- The Western Health System's Clearinghouse (Out of Rapid City, South Dakota),
- The National Health Service Corps (NHSC), and
- Rural Health Initiative Programs.

The Health Systems Research Institute (HSRI) in Salt Lake City is a non-profit organization operating a hospital management program since April, 1974. As part of its program package, physicians and other health care personnal are placed in communities which enter into an HSRI contract. If the contract is terminated, the HSRI employee will leave the community unless various contractual agreements can be made. At this time, five communities in Montana (Cut Bank, Shelby, Poplar, Big Timber and Harlowton) have HSRI contracts. Yellowstone National Park also uses HSRI physicians. Glacier County's (Cut Bank) contract with HSRI has totaled $714,000 over a two-and-one-half year period, ($200,000 per man year). Although this has not been as much as the revenue generated, authorities in Cut Bank believe that eventually it will exceed the county's cost.

The Montana Medical Association (MMA) maintains an active physician referral service. All inquiring physicians are asked to send their bibliographies which are immediately sent out to the areas needing the particular services offered by that physician. All inquiries are also listed in the bi-monthly bulletin distributed to approximately 120 subscribers. The MMA gets about 20 requests per month, however, there is no data on the number of placements made.

The Western Health Systems (WHS) Clearinghouse is a referral and placement program that receives a portion of federal grant money through the Old West Regional Commission. Since beginning its operations in July 1976, WHS has placed a physician in Sidney, Montana. There are several placements currently being negotiated, but the placement process often takes six to 12 months. Any inquiries from practitioners interested in practicing in Western Montana are forwarded by WHS to the Montana State Department of Health and Environmental Sciences, Bureau of Health Planning and Resource Development which, in turn, forwards them to communities, hospitals, and individuals that have expressed a need for a given health care practitioner.

The National Health Service Corps (NHSC) is a federally sponsored program administered through the Public Health Service. It is designed to deal with this country's maldistribution by working with communities which have or will have a shortage of medical manpower. This program places Corps physicians in these shortage areas for two years.

When a physician is placed, the NHSC underwrites the practice, pays the physician's salary and pays back the student loan if there is one. The community agrees to provide the office and supplies as well as hire the support staff that is necessary. The community cost in starting a NHSC practice varies according to whether a hospital or clinic site is already there for the practice. The minimal start-up costs for the equipment and supplies are between $10,000 and $15,000. In addition, the community is expected to pay the NHSC for the physician costs to the best of its ability. This amounts to between $20,000 and $33,000 a year, depending upon whether or not the physician is paying off a student loan. The money generated from the practice is to be used to pay off these costs.

The retention rate of NHSC physicians in shortage area communities has risen from 2 percent in 1972 to 30 percent in 1975. In Montana there are currently four communities with NHSC primary care physicians. They are:

- Glendive (3 physicians)
- Superior (2 physicians)
- St. Ignatius (1 physician)
- Chester (1 physician)

To be designated a critical medical manpower shortage area, a community must have a population to physician ratio of 3,500:1. Communities with a ratio of 3,000:1 may qualify for assistance if other indicators of need are significant. In Montana, this means the following counties can be designated as critical manpower shortage areas:

- Glacier
- Pondera
- Blaine
- Granite (currently losing its only physician)
- Musselshell
- Big Horn
- Phillips
- Valley (possibly)
- Chouteau (now with only two physicians)
- Garfield (currently having no active physicians)

(When published, these will be re-checked and updated if necessary depending on the newer statistics.)

Furthermore, under new regulations, all Indian Reservations automatically qualify as critical manpower shortage areas.

In summary, Figure 1 shows those counties which are eligible for Critical Medical Manpower Shortage Area designation and subsequently for placement of NHSC physicians.

The Rural Health Initiative (RHI) is another federal program which, in Montana, is engaged in physician recruitment and placement. In the past these programs have relied on recruiting from both the private sector and on NHSC placements. To be eligible for RHI funds, communities must be designated as a Medically Underserved Area, which uses an index based upon the following four items:

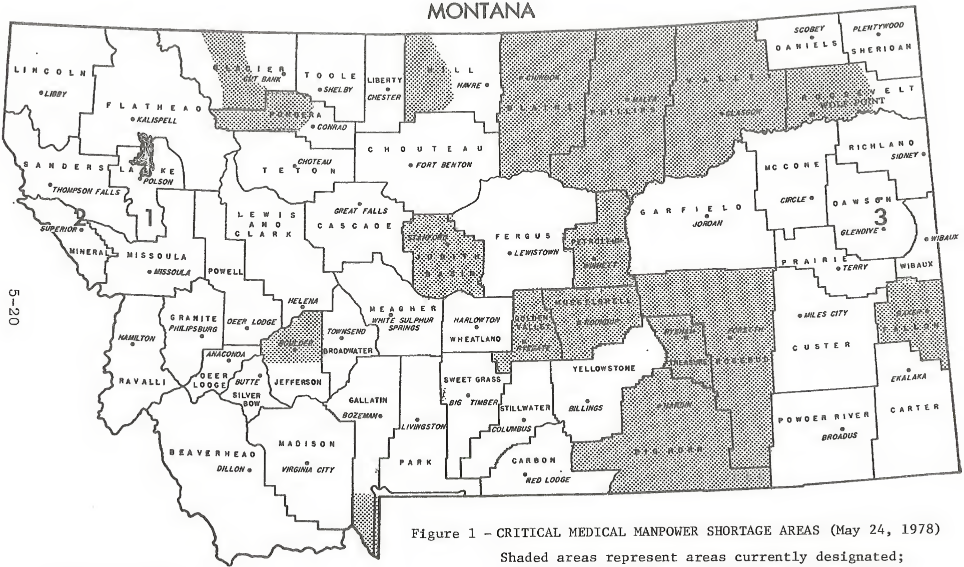
- . The ratio of primary care physicians to population,
- . the infant mortality rate,
- . the percentage of the population which is over 65, and
- . the percentage of the population with family income below the poverty level.

Figure 2 shows those counties designated as medically underserved areas and the areas currently receiving RHI funding.

2.5 Nurse Practitioner

The nurse practitioner is a primary care provider prepared to give continuous, personalized care to the patient/client at the point of entry into the health care system and to continue as the individual's care provider. The delivery of health care in rural areas is not solely concerned with medical care but with health in a broader context. This broader context encompasses environmental and preventive health care, nutrition, physical and mental well-being, as well as medical care. More than 70 percent of the health problems in rural America are chronic health problems that limit activity and require continuous health supervision and support in order for the individual to accommodate these within the context of a meaningful lifestyle. Within the rural population itself, these chronic health problems are greatest among middle and older age groups. Nurse practitioners posses the appropriate combination of physical and psychosocial skills to meet these needs. The physician is the recognized expert in medical aspects of health care and the nurse in nursing aspects. The roles of each are complementary and not substitutive.

Montana has 57 nurse practitioners functioning collaboratively with physicians. Figure 3 shows the geographical distribution of these professionals.



No. 1052 — County Outline Map
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Helena

Figure 1 - CRITICAL MEDICAL MANPOWER SHORTAGE AREAS (May 24, 1978)

Shaded areas represent areas currently designated; numbers reflect number of NHSC physicians at sites currently staffed.

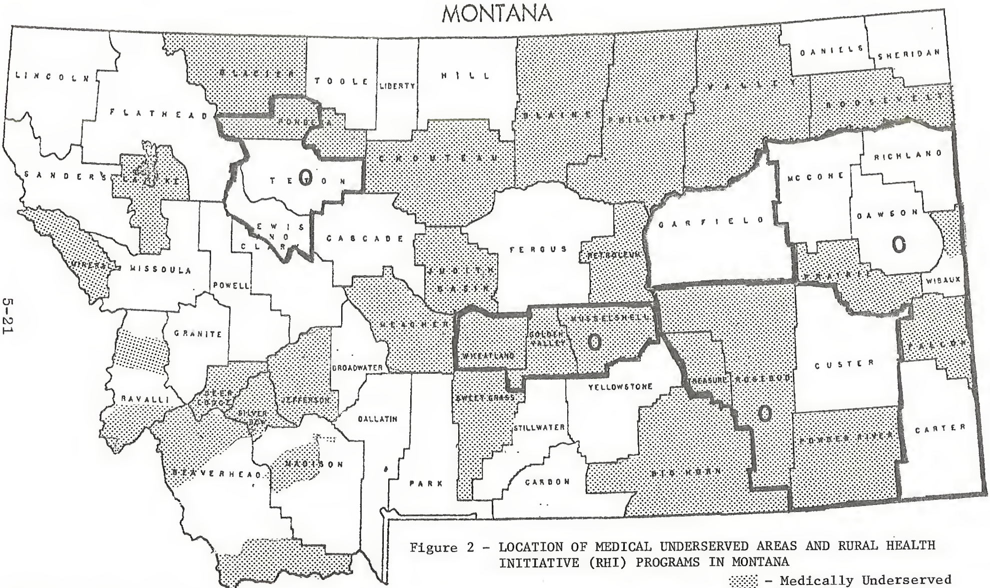

Figure 2 - LOCATION OF MEDICAL UNDERSERVED AREAS AND RURAL HEALTH INITIATIVE (RHI) PROGRAMS IN MONTANA

▨ - Medically Underserved Areas

┐ - Services Areas of RHI Programs

O - RHI Offices

NOTE: Garfield County is currently in both the Glendive and Miles City RHI areas.

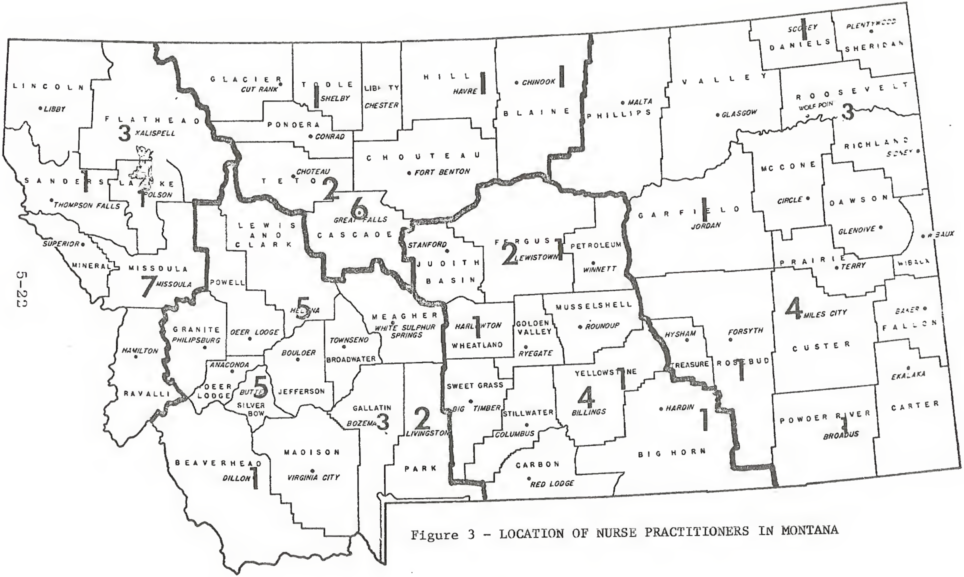

Figure 3 - LOCATION OF NURSE PRACTITIONERS IN MONTANA

SOURCE: Members of the Montana Nurse Practitioner's Association, undated, 1977.

Most practice in primary care settings with physicians or work in state institutions, nursing homes, family planning agencies and public health departments.

3.0 Estimated Future Physician Manpower Requirements

This section will attempt to estimate the number of additional primary care physicians needed in Montana by 1985 and to develop reasonable strategies for their recruitment and retention in needy areas. It is felt that the need for other specialists in the state is less critical and will largely take care of itself.

The Employment Security Division, of the Department of Labor and Industry, estimates Montana will need 1,157 physicians by 1985.11) It estimates a need of 65 physicians a year. They do not separate requirements into specialty groupings.

Several professional groups and studies have suggested ideal population to physician ratios. These vary considerably from one reference to another. In estimating Montana's future need for primary care physicians, the following ratios will be used:

- 1 General/Family Practitioner for every 2,500 persons
- 1 Internist for every 10,000 persons
- 1 Pediatrician for every 10,000 persons
- 1 Obstetrician and Gynecologist for every 10,000 persons

The sources of these ratios are shown in Appendix A. Other possible ratios which could be used are also listed in every county with a hospital. It is emphasized that the above numbers are ideal ratios which may never be realized. They lead to higher estimates than the Department of Labor and Industry's projections. Nevertheless, they may well serve as planning goals.

Another assumption used in estimating the future need for physicians is the separation rate (the percentage who die, retire, quit practicing or move out-of-state). The Bureau of Labor Statistics estimates that the 1970 separation rate for Montana physicians and osteopaths was 3.64 percent.

Table 6 shows the estimated number of primary care physicians needed in each of the subareas by 1985 using these assumptions. It appears that each of the subareas will need between 10 and 15 physicians per year with the largest need being for family practitioners.

The state's ability to attract this many physicians cannot be evaluated at this time. A number of physicians voluntarily come to this state to practice. Up to this time, this group has constituted Montana's primary source of physician manpower. Yet, it appears that organized recruitment programs have not been responsible for attracting them. In fact, the sporadic efforts of individual communities may have been more effective. Programs like HSRI and WSR have contributed little to Montana's overall supply of physicians, although there is no question that they have helped individual, selected communities.

The educational programs supproted by the state appear to have the ability to graduate about 32 physicians a year (20 from the WAMI program and 12 from the WICHE program). Yet, the specialty distribution of these physicians and percentage returning to Montana is not known at this time.

It has been observed that the establishment of Health Maintenance Organizations, the increased use of nurse practitioners, and more group practices, would decrease the number of physicians needed.

Yet, the viability and feasibility of Health Maintenance Organizations still need to be tested in rural areas. To date, no HMO has been successfully implemented in Montana.

An example of the potential reduction in physician manpower which might be realized if more Physician Extenders were commonly used is presented in Table 7. For example, if 10 percent of the general practitioners in solo practice were to use nurse practitioners, the need for general practitioners would be reduced somewhere between two and four percent. This is a theoretical case and cannot be applied to an individual practice.

The proliferation of group practices in Montana to where primary care physicians are needed is not generally feasible. Because of our sparsely populated areas, only one or two physicians are needed - not a medical group. This concept might be appropriate for primary care specialists who would be willing to set up a regional medical practice in selected "medical centers."

One of the most promising concepts currently being considered is the establishment of family practice residency programs in some of Montana's larger hospitals. When fully implemented, each program could produce four family practitioners a year, of which three would probablychoose to practice in Montana.

Programs are currently being developed and implemented at Montana State University School of Nursing to prepare nurses at the graduate level in primary health care.

	North Western	North Central	South Western	South Central	Eastern	State
Estimated 1985 Population	206,093	156,766	205,798	180,819	110,252	859,729
Estimated Number of Physicians Needed:						
·General/Family Practice	82	63	82	72	44	344
·Internal Medicine	21	16	21	18	11	86
·Pediatrics	21	16	21	18	11	86
·Obstetrics/Gynecology	21	16	21	18	11	86
TOTAL	145	111	145	126	77	602
Estimated Number of Current Physicians Still Practicing in 1985						
·General/Family Practice	49	29	61	37	30	205
·Internal Medicine	27	15	13	27	3	86
·Pediatrics	7	6	5	6	1	25
·Obstetrics/Gynecology	9	7	7	11	2	39
TOTAL	92	57	86	81	36	355
Estimated Need Per Year						
·General/Family Practice	5.6	5.7	3.6	5.9	2.3	23.1
·Internal Medicine	0	0.2	1.3	0	1.3	0
·Pediatrics	2.3	1.7	2.7	2.0	1.7	10
·Obstetrics/Gynecology	2.0	1.5	2.3	1.2	1.5	7.8
TOTAL	8.8	9.0	9.8	7.5	6.8	41.2

Table 6 - Estimated Number of Primary Care Physicians Needed in Montana in 1985 by Subarea and Specialty Grouping

Specialty	Potential Increase in Productivity	Proportion of Physicians Employing Physician Extenders	
		10%	25%
General Practice	16-36% [1,2]	2-4%	4-9%
Pediatrics	18-30% [1,2,3]	2-3%	4-7%
Obstetrics	25% [1,2]	2.5%	6%

Table 7 - Potential Reduction in the Need for Selected Groups of Physician Manpower if Physician Extenders Were Employed by a Given Percent of the Physicians

Source: Applied Management Sciences, The Effects of Task Delegation on the Requirements for Selected Manpower Categories, Contract No. NIH 72-4406, prepared for the Division of Manpower Intelligence, Bureau of Health Manpower Education, National Institute of Health, Bethesda MD, May 25, 1973

REFERENCES

1) Revised Codes of Montana, RCM-1947, Title 66, Section 66-102.

2) Federal Register, "Criteria for Designation, Health Manpower Shortage Areas" Vol. 43 No. 6, Tuesday, January 10, 1978.

3) Revised Codes of Montana, RCM-1947, Title 66, Section 66-1222 3(a),

4) Letter from Robert L. Woodahl, Attorney General, to Mrs. Gertrude Malone, Executive Secretary, Montana Board of Nurses, August 28, 1975, Vol. No. 36, Opinion No. 18.

5) Western Interstate Commission for Higher Education, A Study of Medical Graduates of the WICHE student Exchange Programs showing the Relation of that Group to the Medical Manpower of the Sending States, January, 1978.

6) Gordon, T.L. "Discriptive Study of Medical School Applicants" (1975-1976) DHEW Publication No. (HRA) 77-52, February, 1977.

7) Stritter, et al, "U.S. Medical School Applicants, 1969-1970," Journal of Medical Education, Vol. 46, January, 1971.

5.2

SUMMARY

DENTAL PERSONNEL

This component addresses Dentists, dental hygienists, dental assistants and dental laboratory technicians, and estimates the state's future needs for these types of professionals and discusses the various educational support and recruitment programs currently used.

Changes have occured in recent years with a substantial rise in the number of dentists practicing in the state. Montana presently has a ratio of 2,134 people for each practicing dentist. Each subarea has approximately that same ratio with the exception of Eastern Montana which has 33 percent more people to dentists. Eight counties in Montana do not have a practicing dentist and fifteen others have more than 3000 persons for each dentist.

Montana does not have a dental school and has to rely on other states for its dental practitioners. Programs which are state supported to encourage dentists to practice in Montana have significant impact and are considered successful.

Presently there are 17.8 dental hygienists for each 100 dentists. The number of hygienists in the state has risen significantly in the past and is expected to continue to do so.

The MHSA recommends that the state should maintain a population to dentist ratio of 2,000 to 1 in each subarea. With three-fourths of the new dentists needed coming on their own accord, it is anticipated Montana will not need to depend on the National Health Service Corps for future placements. The National Health Service Corps Dental Program should be used to place dentists only in shortage areas where viable, self-supporting practices can be developed.

It is felt that public support of three dental training programs cannot be justified and a discussion should be made based upon costs, quality of education, and probabilities of the student practicing in Montana; which programs should be supported.

There should be at least 40 active dental hygienists for every 100 general dentists in each subarea. The feasibility of establishing another school for dental assistants should be investigated.

Approved by the HSA
Governing Board
July 28, 1978

DENTAL PERSONNEL

GOALS, OBJECTIVES AND RECOMMENDATIONS

The goal of this set of guidelines is to assure that the residents of Montana have reasonable access to quality dental care. In concert with this goal, the following planning goals are suggested:

1. Montana should strive to maintain an overall population to active general dentist ratio of 2,000:1 in each subarea.
2. There should be at least 40 active dental hygienists for every 100 general dentists in each subarea.

Furthermore, the following recommendations are submitted to reflect MHSA policy toward attaining the above goals and objectives:

1. Until 1985, only two, at the most, of the three dental training programs (WICHE, Minnesota and Washington's RDEP) should be supported by state funding. It is felt that public support of all three programs cannot be justified. The decision should be made upon costs, quality of education and the probability of training dentists to practice in Montana.

   It is noted that before either the Minnesota Program or the RDEP is fully implemented, the Montana Dental Practice Act will have to be changed to allow for clinical training. The MHSA supports this change in the Act to allow for dental training.

2. The Dental Hygienists Program at Carroll College should continue to be supported through 1985. It appears unnecessary to start any other dental hygienist educational programs for the foreseeable future.
3. The feasibility of establishing another school for dental assistants should be investigated.
4. The National Health Service Corps (NHSC) Dental Program should be used to place dentists only in shortage areas where viable, self-supporting practices can be developed. At the present time, it is recommended that the following areas be designated critical manpower shortage areas:

   - Phillips County
   - Powder River County

Before any new areas are to be designated, evidence must be provided, either through the county commissioners, local dental society, or by community petition, that there is broad based community support for a NHSC dentist. These new areas should have a population base of at least 2,000 so that a viable dental practice can be built.

5. Those areas currently having a NHSC dentist should continue to be designated critical manpower shortage areas. They are:

   - Toole County (Shelby)
   - Daniels County (Scobey)
   - Roosevelt County (Poplar)
   - Liberty County (Chester)
   - Rosebud and Treasure Counties (Colstrip)

   If they should lose their NHSC dentist, the MHSA should, at that time, reassess their status of being designated a shortage area.

1.0 Background

Dentistry is that branch of the health professions responsible for maintaining and improving the oral health of the public. The primary provider of dental care is the dentist. Assisting the dentist, and, in effect, extending the dentist's own productive capacity are three categories of dental auxillaries: dental hygienists, dental assistants, and dental laboratory technicians.1)

As the primary provider of dental care, the dentist has final responsibility for the delivery of all dental services. More than 70 percent of the dentists in the United States are general practitioners in solo private practices. However, the number of group practices and specialty practices has been increasing.

The dental hygienist, working under the direction of a dentist, performs the traditional tasks of dental prophylaxis (scaling and polishing teeth), exposing and processing dental radiographs (X-rays), applications of fluorides and other preventive agents to teeth, and instruction of patients in oral hygiene techniques and proper diet. The great majority of dental hygienists work in private dental offices. The remainder are employed in public and private schools, clinics, hospitals and other institutions.

The dental assistant's primary function is to assist the dentist as he treats his patients. The assistant's tasks include preparation of the patient, maintaining a clear operating field, passing instruments and materials to the dentist and preparation of materials used in treatment.

Dental laboratory technicians manipulate and shape materials to construct complete and partial dentures, crowns, bridges and orthodontic devices. Most dental technicians work in commercial dental laboratories. However, increasing numbers are being employed by private dental practitioners.

In Montana, only dentists and dental hygienists are required to be licensed. A dental assistant may become a Certified Dental Assistant (CDA) by passing an examination conducted by the Certifying Board of the American Dental Assistants Association. In order to pass this examination, a dental assistant must demonstrate proficiency in a number of dental skills. Because these skills are taught at all accredited dental assistant schools, graduates of these schools generally are certified. At the present time in Montana, these skills and abilities of the Certified Dental Assistant are not being recognized.

The purpose of this component is to estimate the state's future needs for dentists, dental hygienists, and dental assistants, to explore the effectiveness of current recruitment programs in Montana, and to establish MHSA policy toward future manpower issues. It is noted that the MHSA has little direct influence over the state's general manpower policies. The most direct impact comes from the agency's responsibility to assist in the designation of Critical Manpower Shortage Areas prior to the placement of National Health Service Corps (NHSC) personnel and in its responsibility to review Rural Health Initiative (RHI) programs.

2.0 Description of the Current Situation

2.1 Dentists

A comparison between the number of active dentists and population to dentist ratios between Montana and the United States is presented in Table 1. Although Montana has in the past had more population to be served by each dentist than the national average, it appears that this may have changed in recent years. Between 1973 and 1976 there appears to have been a substantial rise in the number of dentists practicing in the state.

In 1976 and 1977, 65 new dentists were licensed to practice in Montana. Of these, about half (33) have established their practices in Montana. On the other hand, the Bureau of Labor Statistics estimates that the 1970 separation rate (the percentage who die, retire, quit practicing or move out of state) for dentists in Montana was 3.44 percent. They project that the 1985 separation rate will be 3.21 percent. That is, the state loses about 12 dentists each year. Thus, it appears that the number of practicing dentists is continuing to increase.

It should be further noted that the State Board of Dental Examiners has recently instituted a second examination each year, so that more dental graduates will have a more frequent opportunity to take the Montana Board. The effect of this policy, if any, would be to further increase the number of dentists practicing in Montana.

Manpower surveys by the State Dental Bureau in 1975 and 1977 indicate that the average age of Montana dentists is about 46 years. Although the number of dentists over 65 years old has increased, so has the number between 25 and 34 years of age.

Year	Number of Active Dentists U.S.	Number of Active Dentists Montana	Population to Dentist Ratio U.S.	Population to Dentist Ratio Montana
1965	86,317	337 1)	2,223	2,095
1967	90,716	318 1)	2,157	2,204
1968	92,013	318 1)	2,147	2,179
1969	92,984	320 1)	2,147	2,169
1970	95,422	314 1)	2,107	2,210
1971	97,210	316 1)	2,101	2,247
1972	97,970	315 1)	2,107	2,283
1973	100,780	330 1)	2,065	2,283
1976	111,178	380 2)	2,186	1,982
1977		409 3)		1,867

TABLE 1 - Number of Active Dentists and Population to Dentist Ratios for Montana and the U.S. For Selected Years.

Source: (1) US Department of Health Education and Welfare, Public Health Service, Health Resources Administration, National Center for Health Statistics, Health Resources Statistics, Health Manpower and Health Facilities, Respective Years, Rockville, Maryland. (The publication reports data two years old)

(2) American Dental Association, Bureau of Economic Research and Statistics, Distribution of Dentists in the United States by State Region, District and County, 1976, Chicago, Ill., 1976.

(3) Data compiled from recent inventory of dentists in Montana.

Table 2 shows the number of active general dentists, the population to dentist ratio and the number of dental specialists in each county and subarea as of 1977. These statistics were compiled from a directory of dentists furnished by the State Dental Bureau, updated with 1976 and 1977 new licensed lists and verified by local telephone books. It was assumed that dentists listed as part-time worked one-half time unless otherwise known to be working lesser hours. Many of the dentists and dental specialists maintained more than one office. Their time was allocated according to the times listed in the Dental Bureau's directory. Population data for the population to dentist ratios were based upon 1976 estimates from the Bureau of the Census.

Of the 409 active dentists in Montana in 1977, 353 (86 percent) were in general practice. Thus, the overall population per general dentist in Montana is about 2,134.

It appears that each subarea is reasonably close to that ratio with the exception of Eastern Montana. Eastern Montana has about 33 percent more people to dentists than the other subareas.

Based on these county ratios, it appears that the maldistribution of dentists in Montana is not as severe as for other health professionals. It is suggested that dentists are more responsive to the market conditions than other health professionals. Yet, eight counties in Montana do not have a practicing dentist and fifteen others have more than 3,000 persons for each dentist.

The dental specialist profile (Table 2) appears to be similar to national statistics. Table 2 includes both board certified or board qualified specialists as well as those limiting their practices to specific problems. In Montana, these specialists are primarily located in the major towns, which is to be expected because their practices require a larger population base. Many of these specialists also maintain offices in a second community where they practice part-time. However, Table 2 does indicate a general lack of dental specialists in Eastern and South Central Montana, with the exception of the Billings area.

An analysis of the dental schools from which Montana dentists graduated shows a heavy emphasis on the University of Minnesota and private universities in the Midwest prior to 1970. The University of Minnesota supplied roughly 21 percent of the dentists who are currently practicing and who graduated prior to 1970. Six other Midwestern schools (Marquette, Creighton, Northwestern, Washington University - St. Louis, and Loyola - Chicago) contributed another 41 percent. In contrast, the Pacific Coast schools, the University of Oregon and the University of Washington, graduated 10 percent.

						SPECIALISTS			
SUBAREA	COUNTY	Active General Dentists	1976 Pop per Actv General Dentists	Oral Surgery	Orthodontics	Pedodontics	Periodontics	Prosthodontics	Public Health
North-western	Lincoln	9.2	1,783						
	Flathead	30.8	1,474	0.8	3.0	1.0			
	Sanders	3.0	2,607						
	Lake	8.0	2,175					1	
	Mineral	1.0	3,500						
	Ravalli	8.0	2,132	0.2	0.05				
	Missoula	44.0	1,489	2.0	2.90	4.0	0.95		
SUBTOTAL		104	1,680	3.0	5.95	5.0	0.95	1	0
North Central	Glacier	3.5	3,114						
	Toole	2.0	2,650						
	Pondera	2.0	3,500						
	Teton	3.0	2,033						
	Cascade	37.5	2,229	2.0	4.22	1	1	2	1
	Chouteau	2.0	3,100						
	Hill	8.0	2,262		0.53				
	Blaine	2.0	3,700						
	Liberty	1.0	2,500						
SUBTOTAL		61	2,411	2.0	4.75	1	1	2	1
South-western	Beaverhead	3.9	2,102		0.05				
	Madison	1.1	4,909						
	Gallatin	17.4	2,149	0.8	2.6	0.8	1	0.5	
	Lewis & Clark	17.3	2,197		2.08	1.0	0.1		1
	Broadwater	2.5	1,240		0.02				
	Jefferson	1.0	6,900						
	Meagher	1.0	2,200						
	Silver Bow	21.6	1,903	0.2	0.90	0.2	0.05		
	Deer Lodge	5.0	2,920						
	Powell	4.0	1,900						
	Granite	1.0	2,700						
	Park	8.0	1,575		0.4				
SUBTOTAL		83.8	2,145	1.0	6.05	2.0	1.15	0.5	1
South Central	Fergus	4.5	2,889		0.25				
	Petroleum	----	-----						
	Judith Basin	0.4	6,750						
	Wheatland	1.0	2,500						
	Golden Valley	----	-----						
	Musselshell	1.0	4,400						
	Sweet Grass	1.0	3,200						
	Stillwater	1.5	3,467						
	Carbon	3.0	2,767						
	Big Horn	2.0	5,300		0.10				
	Yellowstone	56.0	1,717	3	5.15	3.0	3	1	
SUBTOTAL		70.4	2,148	3	5.50	3.0	3	1	0
Eastern	Valley	4	3,350		0.9				
	Daniels	1	3,200						
	Sheridan	2	2,750						
	Roosevelt	5.5	1,909		0.1				
	McCone	1.0	2,700						
	Garfield	----	-----						
	Richland	4.5	2,289						
	Dawson	5.5	2,036						
	Wibaux	----	-----						
	Rosebud	2	4,950						
	Treasure	----	-----						
	Powder River	----	-----						
	Custer	5.0	2,600						
	Prairie	----	-----						
	Phillips	1.0	5,500						
	Fallon	1.0	3,900						
	Carter	----	-----						
SUBTOTAL		32.5	3,068	0	1.0	0	0	0	0
STATE TOTAL		352.7	2,134	9.0	23.25	11	6.1	4.5	2

Table 2 - Dentists and Dental Specialists in Montana by County and Subarea (December 1977)

Between 1970 and the present, a shift has taken place. Of those Montana dentists who graduated during this period, 12 percent graduated from the University of Minnesota (which is still the school which graduates the most dentists practicing in Montana), 23 percent from Midwestern schools and 14 percent from the Pacific Coast schools. The drop in graduates from Midwestern schools seems to indicate that the schools are becoming more locally oriented. Inflationary pressures may have forced them to seek state monies, therefore, give preference to admitting local students. On the other hand, the increase in Montana graduates from the Pacific Coast schools may reflect the impact of the WICHE Program. (The WICHE student exchange program will be discussed in the next section.)

2.2 Dental Educational and Recruitment Efforts

Montana has no dental school and is, therefore, dependent upon out-of-state institutions for its dental practitioners. In addition, Montana has no reciprocity agreement with any other state. All dentists licensed in Montana must take the state board examination.

Currently there are two educational programs for dentists sponsored by the state (the WICHE Student Exchange Program and the Minnesota Program) and one placement program (the National Health Service Corps). In addition, the State Dental Bureau assists in placement by publishing a small pamphlet to dentists expressing an interest in practicing in Montana.

The general intent of these state supported educational programs is two-fold. One is to provide a sufficient number of specific types of trained professionals for Montana. Equally important is the goal of providing Montana students an opportunity to obtain a professional education which they might not otherwise get.

The WICHE Student Exchange Program helps students in Western states obtain access to fields of professional education that are not available in their home states. In dentistry, UCLA, UCSF, Loma Linda University, University of the Pacific, USC, University of Oregon and the University of Washington are currently participating in the program. Each student must be accepted by one of the schools on his/her own merit. Once accepted, the State of Montana pays a given amount to the school and the student pays in-state tuition. In 1976, the State spent $96,000 for 16 dental students in the program. The amount appropriated for the 1977-1978 biennium was $230,000 for 20 students.2)

An analysis of the WICHE dental students is presented in Table 3. It shows that of the 50 Montana students who could be followed, 23 (46%) returned to the state to practice. Of the students graduating between 1970 and 1977, 48 percent are currently practicing in the state and 33 percent are in the armed services. It is interesting to note that most of the WICHE dentists practicing in Montana returned to their original home towns.

In summary, it costs the State of Montana approximately $46,000 to train a dentist in the WICHE program to practice in Montana. The program costs $5,750 per student per year in the WICHE program ($23,000 for four years) and the State can expect about one-half of the students to return to Montana.

The second educational program sponsored by the State is a similar arrangement with the University of Minnesota. This program was set up in the passage of Rural Dental Act by the 1975 state legislature. Part of this program provided for students to receive part of their practice training in the offices of dentists in practice in Montana. However, because of conflict with the Dental Practice Act, this part of the program has not been successfully implemented.

At the present time, 20 Montana students are in the Minnesota Program. The cost of the program to the State is $11,200 per student per year and indications are that it will continue to increase $1,000 a year. Because the program is relatively new, its impact on dental recruitment cannot be assessed.

A third training program, the University of Washington's RDEP (Regional Dental Educational Program), is in planning stages. This program would be similar to the WAMI program for medical students. One major problem, however, before it can be implemented is that the current Dental Practice Act will have to be changed. Part of the RDEP student's training may take place in Montana dental offices or other appropriate clinical settings; i.e. (a perceptor program) and the current statutes do not allow for this. Although the costs of this program to Montana have not been worked out, it, too, will probably be substantial. A recent study at Washington estimated that the school's cost was $13,500 per dental student per year.3)

The most active, formal placement program in Montana is the National Health Service Corps. This program places dentists in designated dental shortage areas for two years. The contract can be renewed for a second two years. It is expected that most practices should be able to do without NHSC assistance after the first two years.

When a dentist is placed, the NHSC underwrites the practice, pays the dentist's salary and pays back the student loan. In some cases, the dental equipment is also purchased by the NHSC.

PRACTICE LOCATION

Year of Graduation	In-State	Out-of-State	Military	Total
Before 1970	13 (45%)	14 (48%)	2 (7%)	29
After 1970	10 (48%)	4 (19%)	7 (33%)	21
TOTAL	23 (46%)	18 (36%)	9 (18%)	50(1) (100%)

Table 3 - Practice location of Montana dental students participating in the WICHE Student Exchange Program.

1) Sixty Montana dental students participated in the WICHE Student Exchange Program. Ten could not be tracked with the ADA Directory. Of these, five were 1977 graduates and one is known to have died.

Source: Compiled from unpublished data from the Commission on Higher Education and the ADA Directory of Dentists.

A dentist is placed on site only after a local community group has agreed to furnish a facility and take financial responsibility for the practice. The community is also expected to pay back the government's cost and the practice's overhead from the revenue generated. This amounts to about $50,000 per year if no equipment has to be purchased. (The average NHSC dentist's salary is $20,447 per year if no student loan has to be repaid and $30,447 if a student loan has to be paid.) The National Health Service Corps feels that the practice can be viable if the dentist can see between seven and fifteen patients a day.

Nationally, 45 percent of the Corps dentists have extended for another two years, 22 percent left the Corps but remained on site, and 32 percent left both the Corps and the community. In Montana, there are currently five communities with NHSC dentists. They are:

- Scobey (started 9/77)
- Poplar (started 6/77)
- Colstrip (starting 7/78)
- Shelby (started 12/77)
- Chester (started 1/78)

To be designated a critical dental shortage area, a community must have a population to dentist ratio of 5,000:1. In some cases, a ratio of 4,000:1 can qualify.4) In Montana, this means the following counties could be designated as critical manpower shortage areas:

- Madison County
- Jefferson County
- Big Horn County
- Rosebud and Treasure Counties
- Phillips County
- Powder River County
- Petroleum County
- Judith Basin County
- Garfield County
- Wibaux County
- Prairie County
- Carter County

It is felt that many of these counties currently without a dentist do not have a sufficient population base to support a dental practice. Most of these counties have populations of less than 2,000 persons.

Thus, in summary, Figure 1 shows the counties eligible to be designated as critical dental manpower shortage areas, those counties recommended for designation, and those counties where NHSC dentists are currently practicing.

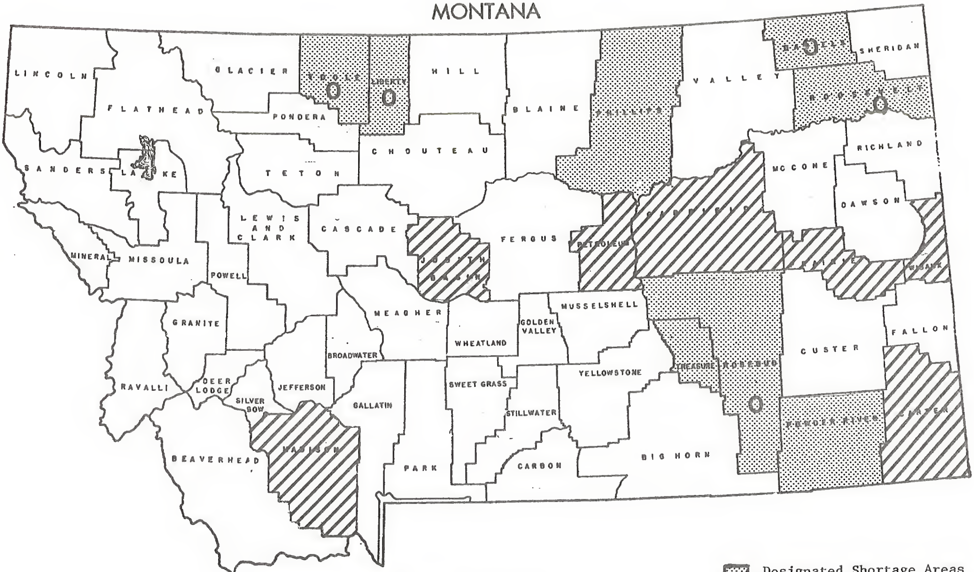

FIGURE 1 - Critical Dental Manpower Shortage Areas in Montana

▨ Designated Shortage Areas

▧ Eligible shortage areas, but having insufficient population to support pract

O Staff NHSC Sites

NOTE: Jefferson and Madison Counties are currently designated shortage areas, but Jefferson County has attracted a private dentist and there is currently no interest in getting a dentist in Madison County.

One problem with the National Health Service Corps dentists is that they need not be licensed in Montana. The Regional Office, however, has developed a policy that each assignee take the examination as soon as possible after placement. If they do not get a Montana license, they cannot write prescriptions nor get Medicaid reimbursement because they can't get a Medicaid Provider Number. If the federal government buys their equipment, they may be faced with repair and maintenance problems since supply companies are reluctant to service equipment not purchased from them.

2.3 Dental Hygienists

There is little trend data on the number of dental hygienists in the state. Nationally, between 1960 and 1973 the number of active hygienists increased from 8,000 to over 22,000. During the same period, the ratio of active hygienists per 100 dentists doubled. In 1973 this ratio was 21. However, because part time employment is common among hygienists, the effective supply of hygienists is probably less than this ratio suggests.5)

Table 4 shows the number of dental hygienists employed in Montana in 1975 and 1977 by county and subarea. It also shows the number of hygienists currently licensed in Montana and living in Montana. The employment statistics were compiled by the State Dental Bureau from surveys they conducted. The licensed data was obtained from the 1975 Board of Dentistry's directory and updated with 1976 and 1977 licensing lists.

Many of the hygienists work part-time and several work for more than one dentist. Table 4 indicates 59 percent of the licensed hygienists are employed. Nationally, it appears that there are 20 hygienists employed for each 100 dentists. In Montana, this ratio is somewhat smaller, 17.8 full-time equivalent hygienists per 100 active general dentists. It is interesting to note that Eastern Montana has the fewest per capita dentists and also has the lowest ratio of hygienists to dentists. One would expect that in areas where dentists are needed, hygienists would be utilized to a greater extent, hwoever, this does not appear to be the case.

2.4 Education and Recruitment Programs for Dental Hygienists

Carroll College currently has the only dental hygiene program in the state. This is a relatively new four-year program, having its first class graduate in 1975. The average class size at Carroll is 20 students; about three-fourths of any given class graduate. The administrators of the program have reported 100 percent placement of its graduates so far, but it appears that between nine and ten end up practicing in Montana.

		DENTAL HYGIENISTS (FEB. 1975)			DENTAL HYGIENISTS (APRIL 1977)			NUMBER LICENSED HYGIENISTS (1977)
SUBAREA	COUNTY	NUMBER	TOTAL DAYS/WK	FTE	NUMBER	TOTAL DAYS/WK	FTE	
Northwestern	Lincoln	1	5	1.0	2	6	1.2	3
	Flathead	8	3.5	7.0	8	37.5	7.5	11
	Sanders							
	Lake							
	Mineral							
	Ravalli							1
	Missoula	14	55	11	17	64.5	12.9	23
SUBTOTAL		23	63.5	19.0	27	107	21.6	38
North Central	Glacier							
	Toole							2
	Pondera							
	Teton	1	1	0.2	1	2	0.4	
	Cascade	7	16.5	3.3	10	27.5	5.5	16
	Chouteau	1	5	1.0				1
	Hill	4	18	3.6	5	25	5.0	6
	Blaine				1	1	0.2	1
	Liberty							1
SUBTOTAL		13	40.5	8.1	17	55.5	11.1	27
Southwestern	Beaverhead							1
	Madison							1
	Gallatin	4	20	4.0	7	28	5.6	10
	Lewis & Clark	5	16.5	3.3	8	32.5	6.5	21
	Broadwater							1
	Jefferson							
	Meagher							2
	Silver Bow	2	9	1.8	4	12.5	2.5	6
	Deer Lodge							
	Powell							
	Granite							
	Park				1	5	1.0	1
SUBTOTAL		11	45.5	9.1	20	78	15.6	43
South Central	Fergus	1	2	0.4	1	2	0.4	3
	Petroleum							
	Judith Basin							
	Wheatland							
	Golden Valley							
	Musselshell							1
	Sweet Grass							
	Stillwater							
	Carbon							
	Big Horn							
	Yellowstone	8	34.5	6.9	13	53.5	10.7	16
SUBTOTAL		9	36.5	7.3	14	55.5	11.1	20
Eastern	Valley				1	2	0.4	3
	Daniels							
	Sheridan				1	5	1.0	2
	Roosevelt							2
	McCone							
	Garfield							
	Richland							
	Dawson				1	5	1.0	2
	Wibaux							
	Rosebud							
	Treasure							
	Powder River							
	Custer	1	5	1.0	1	5	1.0	3
	Prairie							
	Phillips							
	Fallon							
	Carter							
SUBTOTAL		1	5	1.0	4	17	3.4	12
STATE TOTAL		57	222.5	44.5	82	314	62.8	140

TABLE 4 - Dental Hygienists in Montana by County & Subarea

Since Carroll College is a private institution, it is not eligible for state support. The dental hygiene program was initiated with a grant from the Veterans Administration which is due to expire in 1979.

Until recently, Montana has also participated in a WICHE Student Exchange Program for Dental Hygienists. The program is currently being phased out because the state now has a dental hygiene program at Carroll. Thus, no new WICHE dental hygiene students will be supproted. Those currently in the program will continue through the 1978-79 school year.6)

Under the WICHE program, the State's role was limited to assisting in the two-year clinical training of these students. Participating schools included Idaho State University, Sheridan College, University of Oregon, Loma Linda University, University of Washington, and University of New Mexico. In 1977 (fall), eight Montana students were enrolled in this program for a total cost of $4,200 per student per year to the State.

It is difficult to track the dental hygienists who participated in the WICHE program. First, the hygienists are primarily women who may have changed their name after getting married. Second, there is no national directory of hygienists. A search of the WICHE records, current licensing lists and the data from the State Dental Bureau's latest survey revealed the current locations of 22 of the program's 43 graduates. Of the 43 graduates, 15 (35%) are known to be residing in Montana.

The National Health Service Corps also helps place dental hygienists in shortage areas under arrangements similar to their physician and dentist programs. However, no explicit criteria has been used to govern these placements and no NHSC dental hygienists have been placed in Montana. The Glendive RHI is supporting a dental hygiene program, but the hygienists have been independently recruited.

2.5 Dental Assistants

The estimated number of active dental assistants increased from some 55,000 in 1950 to over 134,000 in 1975. Over the same period, the ratio of active dental assistants to active dentists increased from 70 assistants per 100 dentists to 120 per 100.

The majority of dental assistants have been trained by their dentist employer. However, over the past decade, the number of graduates from accredited programs has increased from 1,242 to 5,972, and the number of programs has increased from 64 to 250.

In 1976, the Great Falls Vo Tech Dental Assistant School sent out a questionnaire to all the dentists in Montana, seeking information on dental assistants, such as number employed and type of training. Thirty-six percent of the dentists responded, which is a sufficient number to give a valid representation of the state as a whole.

The information gained indicates there were 1.1 dental assistants employed per dentist at that time. In 1975, the latest figures available on a nationwide basis, the average ratio was 1.2 dental assistants per dentist, so this figure of 1.1 in Montana is slightly below the national average. All indications are that this figure will increase as four handed dentistry is practiced more and the skills of dental assistant school graduates are utilized to a greater extent.

The national trend has been for dentists to employ graduates from accredited dental assistant programs, rather than train them on the job. The survey taken here in Montana indicates that over 48 percent of the dental assistants now employed have had some formal education. This trend has seen the number of graduates from accredited schools increase from 1,242 to 5,972 in the last decade - an increase of almost five-fold.

There is a high turnover in dental assistants - estimates are as high as every six months in the average dental office. This figure does not indicate the number that are actually leaving the profession, but rather those that change employers. This change is much greater than those leaving the dental profession, and is understandable in a job situation where there is a constant one-to-one relationship between dentist and assistant. Personal interrelationships, especially personality clashes, far outweigh skills in these situations. Marriage must also be considered an attrition factor, as well as tedium and boredom with a job requiring highly developed skills and concentration that at times becomes very repetitious.

3.0 Estimate of Future Personnel Needs

3.1 Future Dental Needs

In estimating the long-range future manpower requirements for general dentists, four assumptions are made. They are:

1. The state should attempt to maintain a population to dentist ratio of 2,000:1 in each subarea.
2. The 3.21 percent separation rate for dentists in Montana (projected by the Bureau of Labor and Statistics) is realistic.
3. About three-fourths of the new dentists needed will come and practice in Montana of their own accord.
4. The National Health Service Corps will have little overall impact on Montana's future dental manpower requirements.

Table 5 shows the estimated number of additional dentists needed in Montana in 1985 by subarea. It is estimated that 77 more dentists will be needed to keep up with Montana's expected population growth and another 77 will be needed to replace those lost by attrition. This amounts to a total of 22 newly licensed dentists each year.

It is assumed that at least three-fourths (17) will be voluntarily attracted to Montana without any formal recruitment or educational support program. Even this assumption may be conservative. It appears that other areas of the nation are experiencing a surplus of dentists, thus, more dental graduates may be attracted to Montana. For the last two years (1976 and 1977), for example, Montana averaged 15 newly licensed dentists who fell into this category. Only four of these 30 new dentists had participated in the WICHE program.

At the present time, Montana has 40 dental students in either the WICHE or the Minnesota program, with about ten graduating each year. Based on the past experience of the WICHE program, five of these will end up practicing in Montana. Thus, one can expect to meet the State's needs for dentists for the next four years.

3.2 Future Need for Dental Auxiliaries

It is expected that by 1985 the need for dental auxiliaries will increase significantly. Clinical studies have shown that a dentist working with an auxiliary is about 30 to 33 percent more productive than a dentist working alone.7,8) This may increase as the auxiliary is allowed to perform even more functions.

In estimating the need for dental hygienists in Montana in 1985, three assumptions are made. They are:

1. The need for hygienists will increase 100 percent to 40 hygienists per 100 dentists by 1985.
2. There will be no attrition among the hygienists currently employed.
3. The labor participation rate will continue to stay at 60 percent and those employed will be working 75 percent of the time.

The first assumption is supported by the fact that the number of additional hygienists currently needed is about equal to the number currently employed. In addition, the number of dental hygienists employed nationally in 1973 is double the number which was employed in 1960.9) A 1974 national manpower study also projects that the supply of hygienists will double between 1975 and 1985.10)

The second assumption will yield an extremely conservative estimate of the number of hygienists needed in 1985. However,

SUBAREA	COMMUNITY	COUNTY	ESTIMATED NUMBER OF DENTISTS CURRENTLY NEEDED
Northewstern	Eureka or Whitefish	Lincoln/Flathead	1-2
	Missoula	Missoula	1-10
	Polson	Lake	1
	Ronan	Lake	1
North Central	Chester	Liberty	1 1)
	Conrad	Pondera	1
	Cut Bank	Glacier	1
	Great Falls	Cascade	1-2
	Havre	Hill	1-2 1)
	Shelby	Toole	1
Southwestern	Anaconda	Deer Lodge	1-4
	Butte	Silver Bow	1-10
	Ennis	Madison	1 2)
	Helena	Lewis & Clark	1
	Livingston	Park	1
	Philipsburg	Granite	1
South Central	Billings	Yellowstone	1-5 3)
	Columbus	Stillwater	2
	Hardin	Big Horn	1
Eastern	Baker	Fallon	1
	Glasgow	Valley	1-2
	Glendive	Dawson	1-5
	Malta	Phillips	1
	Sidney	Richland	1
	Wolf Point	Roosevelt	2

1) National Health Service Corps Dentists have been placed in these two communities since the survey has been conducted.

2) One dentist stated a need for an oral surgeon and another, a need for a periodontist.

3) One dentist stated a need for an oral surgeon.

TABLE 5 - Current Dental Manpower Needs as Viewed by Montana Dentists

Source: Dental Manpower Survey conducted by the State Bureau of Dentistry, April 1977 no estimate of the separation rate for hygienists is currently available. It appears that most dental hygienists work for only two to three years and then drop out of the labor force. This observation is supported by the fact that most of the hygienists in Montana are relatively young.

The final assumption indicates that the participation rate in 1985 will remain about the same as is currently observed. In 1977, 82 of the 140 hygienists in Montana (58.6 percent) were employed. These 82 can be converted to 62.8 full-time equivalent hygienists - that is, each was employed about 76.6 percent of the time (see Table 4).

Based on these assumptions, the estimated number of dental hygienists needed in Montana in 1985 was calculated and is presented in Table 6. It is estimated that Montana will have to license 35 hygienists per year to meet its 1985 needs. In 1976, 30 new hygienists were licensed and in 1977, 40 were licensed. However, maintaining this level of new dental hygienists depends heavily upon out-of-state educational institutions in which the state has no control. In addition, many of the graduates of Carroll College's program are out-of-state residents who will not end up practicing in Montana.

In order to reach the goal of 40 active hygienists per 100 dentists in Montana by 1985, two options may be considered. First, the WICHE Student Exchange Program may be reinstated; second, a dental hygienist program in the Montana university system may be instituted. Of the two, supporting the WICHE program would be less expensive unless Montana were to participage in the RDEP program and the dental hygienist could be established in conjunction with it.

With respect to the need for dental assistants, if the assumption is made that the dental assistant-dentist ratio will remain the same until 1985, and allowing for a minimal attrition rate, an additional 169 dental assistants would be needed. If the assumption is made that the number of employed dental assistants will increase at just one-half the rate that it has increased nationally during the past ten years (150 percent from 1965 to 1975), then an additional 439 dental assistants would be needed. A median figure would be 304.

To meet this demand, 43 dental assistants would be needed each year. Should the trend continue for dentists wanting assistants that have been trained at an accredited dental assistant school, then 14 additional assistants would be needed in addition to those graduated from the Great Falls Vo Tech Center. These additional dental assistants would either have to be procured from sources outside the state, or else additional training facilities would have to be established within the state. Since there are just five dental assistant schools in the four surrounding states of Idaho, Wyoming, North Dakota and South Dakota, (plus an additional two in the Spokane, Washington area), it may be advisable to consider facilities within the state.

Subarea	Number of Dentists Needed in 1985	Number of Dental Hygienists Needed in 1985[1)]	Number of Dental Hygienists Currently Employed	Additional Dental Hygienists Needed in 1985	Newly Licensed Dental Hygienists per year
Northwestern	103	41.2	21.6	46.6	7
North Central	75	30	11.1	42.0	6
Southwestern	103	41.2	15.6	56.9	8
South Central	90	36	11.1	55.3	8
Eastern	55	22	3.4	41.3	6
TOTAL	429	170.4	62.8	242.1	35

1) It is assumed that in 1985 Montana will require 40 dental hygienists/100 active general dentists.

TABLE 6 - Estimated Number of New Dental Hygienists Needed in Montana by 1985 by Subarea.

Records show that two-thirds of last year's graduating classes from the Great Falls Vo Tech Center obtained employment in Great Falls and the immediate vicinity. Judging from this, the Billings area might bear investigating as an additional site for a dental assistant program.

No estimate of the future need of dental laboratory technicians can be made at this time.

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4) Federal Register, Criteria for Designation, Health Manpower Shortage Areas, Vol. 43, No. 6, Tuesday, January 10, 1978.

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6) Memo from Leoti J. Waite, February 2, 1978.

7) Cole, R. B. & L. K. Cohen, "Dental Manpower" Millbank Memorial Fund Quarterly, Vol. 49, July, 1971.

8) Lotzkar, S. et al, "Experimental Program in Expanding Functions for Dental Assistants: Phase 1, Baseline & Phase 2 Training", JADA, Vol. 82, January 1971.

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10) U.S. Department of Health, Education & Welfare, Public Health Service, Health Resources Administration, Bureau of Health Resources Development, The Supply of Health Manpower 1970 Profiles & Projections to 1990, December 1974, DHEW Publication No. (HRA) 75-38.

5.3

SUMMARY

EMERGENCY MEDICAL SERVICES

The Emergency Medical Services (EMS) component defines the medical aspects of Basic Life Support (BLS), Advanced Life Support (ALS) and the Mobile Intensive Care Unit (MICU) pointing out the need for highly skilled professionals and paraprofessionals statewide.

The EMS system requires trained manpower, transportation, facilities, communication, and organization. Within the organizational structure, BLS and ALS protocols have been developed which address standards for the treatment of emergencies, licensing and certification of personnel and proper allocation of funds.

Documentation is provided regarding the incidence, prevalence, and mortality of injury, illness or death affecting Montana's population which dictates a need for the EMS system. Additional comment is provided on service trends in EMS, contrasting national trends and those current in Montana.

Another section of the component deliniates cost factors, availability, accessibility, continuity, acceptability, and quality of care, in addition to inventory and utilization of equipment and personnel on a state and county level which are considered by the Bureau of Emergency Medical Services.

The last section of the EMS component details the current problems associated with the delivery of emergency medical life support and transportation in Montana in conjuction with a methodology for estimating service requirements.

Governing Board
July 28, 1978

EMERGENCY MEDICAL SERVICES

Goals

The following are goals of this plan:

1. Reducing suffering, disability and death from emergency situations by assuring readily accessible, high quality Emergency Medical Services for every Montana resident and visitor.
2. Assuring adequate numbers of properly trained EMS personnel, properly staffed and equipped ambulances, properly staffed and equipped emergency facilities, and properly staffed communications equipment.
3. Assuring the most efficient organization and use of EMS resources.

Objectives

To achieve these goals, the following objectives are proposed:

1. Within two years, there should be established an ongoing, comprehensive training and continuing education program for EMTs, physicians, nurses and the general public. This should include regional training coordinators.
2. Within two years, there should be basic hospital-to-ambulance communications in all areas of Montana.
3. Within three years, financial support for EMS should be available to all areas of Montana on an ongoing basis so that the system does not have to rely on short-term federal grants.
4. Within two years, a State EMS plan should be developed which assesses the deficiencies and needs of an EMS system in Montana, according to established criteria. The plan should incorporate:
    a. A survey of the geographic placement of EMS manpower and an assessment of manpower and training needs;
    b. An ambulance placement strategy, coupled with a plan for the development of Quick Response Units and the air transportation system;
    c. Minimum standards and criteria for various categories of EMS facilities and an assessment of current deficiencies;
    d. A delineation of the responsibilities of state and local governments in establishing and financially supporting an EMS system;
    e. A time-phased implementation schedule with a financial statement.
5. Within three years, evaluations of EMS systems should be conducted on an ongoing basis statewide.
6. Within 10 years, dispatching of emergency vehicles and personnel should be conducted from a central location within each EMS service area.

7. Within 10 years, all areas of Montana should have central telephone access to the EMS system. This access number should be 911.

8. Within two years, an initial vertical categorization of Montana hospitals should be completed by the State EMS Bureau and Montana hospitals. This categorization should be continually updated and made available to physicians as a transfer guide to EMS facility capabilities.

9. Within two years, existing preventive health education programs in Montana, both private and governmental, should provide a coordinated approach in stressing the importance of safety, good nutrition, adequate exercise and proper health habits in preventing potential emergency situations such as accidents and heart disease.

Recommendations

To achieve the above goals and objectives, the following recommendations are made:

1. The HSA recommends that for all future federal EMS grants in Montana, the state and federal governments give higher priority to the development of Basic Life Support services statewide than to the development of Advanced Life Support services in any area of the state. Further, the HSA recommends that the particular needs of each local area, along with their accessibility to medical facilities and personnel, be used as strong criteria in establishing funding priorities.

2. The HSA, recognizing the problems in obtaining ongoing financial support for EMS, recommends to county governments that they exercise their legal option to assess a one-mill levy for EMS by 1980.

3. The HSA recommends that the Legislature establish a more stringent penalty for exceeding the 55-mile per hour speed limit on Montana's highways by 1981.

4. The HSA recommends that the EMS Bureau develop standards for air ambulances by 1979.

5. The HSA recommends that the EMS Bureau ensure consistency between EMS training and testing by 1979.

6. The HSA recommends that the EMS Bureau establish county councils and local medical directors in all counties of Montana by 1985.

Resource Requirements

Task	Resources
Objective 1	3 full-time regional coordinators 2 full-time state coordinators Red Cross and American Heart Association trainers Trainers and coordinators from other public and volunteer agencies Physician and nurse consultants and coordinators in each community and region

	Training films, props, books Trainees time and travel
Objective 2	Half time state coordinator Coordinators in other public and volunteer agencies, hospitals and ambulance services Communications equipment
Objective 3	1 full-time state fund-raiser, funding promoter Volunteer promoters at local level--EMS Councils County government, public support
Objective 4	1 full-time state planner EMS councils
Objective 5	1 full-time state evaluator Physician consultants EMS councils PSRO
Objective 6	Dispatchers in each county EMS Councils to organize central dispatch Involvement of all public safety agencies Dispatch equipment
Objective 7	Telephone company cooperation, equipment, and manpower 911 telephone answerer EMS Councils organizing 911 system Cooperation of emergency and public safety agencies
Objective 8	Cooperation of Montana hospitals Physician consultants Part-time EMS Bureau Coordinator
Objective 9	Cooperation and development of health education programs
Recommendation 1	Part-time HSA promoter
Recommendation 2	Part-time HSA promoter County government cooperation
Recommendation 3	Part-time HSA staff preparation and staff lobbyist HSA Board lobbyists
Recommendation 4	Part-time EMS Bureau staff EMS Councils Physician consultant
Recommendation 5	Part-time responsibility of state training coordinator
Recommendation 6	1 full-time EMS Bureau coordinator at state level Part-time services of regional coordinators EMS Council time and travel Physician consultant/director time

1.0 SERVICE DESCRIPTION, DEFINITION

The term Emergency Medical Services (EMS) refers to a full range of medical and medically-related services provided on an emergency basis to people who might die or become permanently disabled without them. Because emergency medical services must be provided quickly and efficiently, they must be planned and maintained in a state of continual preparation. They also must be organized into a system in which all components work together to meet a patient's total needs.

The full range of emergency medical services is illustrated in the following example of a patient who has a heart attack while shoveling snow from his sidewalk.

1. The emergency is rapidly detected, located, and reported. The patient experiences chest pains and collapses. His wife recognizes the signs of a cardiac arrest, calls an established, well-publicized emergency telephone number for help, indicates the type of emergency, and the patient's address. She then begins to perform cardiopulmonary resuscitation (CPR), which she has learned through a community-wide educational effort.

2. Public safety personnel, properly equipped and staffed ambulances, and any other necessary emergency personnel are rapidly dispatched from a central location. Public safety personnel (such as the police or fire departments) are dispatched, if necessary, to render immediate life-saving first aid prior to arrival of transport vehicles. Ambulance crews are told the nature of the emergency and the address of the patient. Dispatching is conducted from a central location having the capability of providing the best help in the shortest possible time and of coordinating the dispatch of all emergency assistance.

3. Proper emergency medical care is administered to the patient at the emergency scene. CPR is begun at the scene by the patient's wife, bystanders, public safety personnel or ambulance crews. CPR is the provision of artificial respiration and external cardiac pressure.

4. The patient is transported to a medical facility and medical care is continued while enroute to the facility. The patient is transported by Certified Emergency Medical Technicians in a well-equipped ambulance.

5. Ambulance personnel, public safety personnel and medical facility personnel communicate through an established communications system. Over established emergency frequencies on two-way radios, ambulance personnel notify the hospital that they are bringing in a heart attack patient and provide appropriate information about the patient's medical condition. The hospital then prepares for the patient. Ambulance personnel also receive information about infield patient care from a physician or nurse at the facility.

6. Adequate care is provided at the medical facility. When the patient reaches the hospital, the hospital is staffed and equipped to provide immediate life-saving aid and when appropriate, to continue definitive care until the patient is recovered.

7. If necessary, the patient is transferred to a more specialized facility. Although 95 percent of emergencies can be treated at any facility[1], approximately five percent require transfer to another facility for definitive care. In this case, the initial facility cannot provide the specialized care needed and the patient must be transferred to another facility. The transfer is made with the assurance that the patient will receive, at a minimum, the same level of care enroute as he would receive at the local hospital. Arrangements are made for appropriate personnel and equipment to accompany the patient from the original hospital.

8. The system incorporates continual planning, coordination, and evaluation. Before the patient ever had his heart attack, a number of people were involved in the planning of an EMS system which could adequately respond to an emergency. While he was being treated all of the elements of the system were coordinating with each other. After he was treated, people in the EMS system evaluated the care provided and the system operation so that they could make any necessary changes in the system. Emergency Medical Services are unique among health care delivery programs since they involve not only health professionals but a multitude of other personnel--law enforcement, fire, communication, American National Red Cross, American Health Association and others.

In the above descriptive example, the patient was provided the basic services necessary to keep him alive. Similar services are provided to all types of emergency patients--trauma, burn, poisoning, etc. The system described above was a Basic Life Support (BLS) system. Some EMS systems also can provide Advanced Life Support (ALS); the provision of care in the pre-hospital phase which is typically considered hospital care, combined with improved inter-hospital transportation. As an example, an ALS system would provide a mobile intensive care unit (MICU) which would be dispatched to the home of the man who had a heart attack. This specially equipped and staffed unit would provide the extent of care generally given in a hospital's coronary care unit.

At both levels, five basic resources are necessary: trained manpower, transportation, facilities, communications and organization. Each of these is described below:

Trained Manpower -- EMS manpower includes the public; law enforcement and fire departments, ski patrols, search and rescue squads and other public safety personnel; Quick Response Units; ambulance attendants; dispatchers; nurses; physicians; and a variety of support personnel in the hospital. All of these personnel require varying degrees of training to perform their particular job within the EMS system.

Transportation -- There are two levels of EMS transportation--primary and secondary. Primary transportation includes ambulances equipped and staffed to provide BLS to emergency patients at the scene and enroute to a medical facility. Primary transportation is generally thought of as ground transportation. Secondary transportation includes the vehicles and personnel involved in the transfer of patients from one facility to another. It generally is considered the provision of Advanced Life Support. Secondary vehicles include air ambulances and advanced life support vehicles (often known as Mobile Intensive Care Units or MICU's), as well as primary transport vehicles doubling as secondary transport vehicles. In Montana the same vehicle may serve as both the primary and the secondary transport vehicle. However, when serving as secondary transport vehicle, it is equipped and staffed at a level commensurate with the patient's medical needs.

During the past decade, in the pre-hospital phase of EMS, the emphasis has changed from simply "throw-and-go" (rapid transportation of the patient) to the provision of life saving and condition-stabilizing techniques at the scene. Training of non-physicians to provide such care, widespread public cardiopulmonary resuscitation (CPR) training, improvements in ambulance equipment and design, improvements in communications capabilities, and the development of MICUs for ALS all are aimed at improving the pre-hospital delivery of emergency medical care.

Facilities -- Definitive medical care for emergency patients is provided at medical facilities. Emergency capabilities at these facilities include emergency rooms or departments staffed by nurses and/or physicians, radiology and laboratory departments, critical care units and other support services. Because facilities differ in their capabilities to handle various emergencies, they are often categorized according to their capabilities.

EMS planners have defined two types of facility categorization: horizontal and vertical.

Horizontal categorization establishes several levels of care, such as basic, advanced and comprehensive, or Level I, Level II, and Level III. (Depending on the particular categorization scheme chosen by planners in that region or community.) Horizontal categorization typically refers to the capability of the emergency department or emergency room.

Vertical categorization classifies hospitals according to the overall ability of the hospital to treat a variety of critical patients. The National Emergency Medical Services Systems Act of 1973, the primary piece of legislation now guiding EMS development in the United States, emphasizes seven critical care categories for inclusion in a vertical categorization scheme. Those categories include trauma, spinal cord injury, burns, acute cardiac care, high risk infants, poisonings and drug overdose, acute alcohol intoxication and psychiatric emergencies. Categorization is intended to identify the specialized capabilities of hospitals to care for critically ill and injured patients and to promote transfer of these patients, when necessary, to the appropriate facility. Emphasis must be placed upon adequate stabilization at the nearest medical facility. Only in an estimated five percent of emergency cases is the patient so critical that transfer to another specialized facility is necessary. This is obviously dependent upon local personnel and equipment resources. An extremely important part of a rural EMS system is the care received at the local hospital.

In the hospital phase of EMS, increasing workloads have been brought about by a number of factors, including population growth, increased incidence of chronic disease, higher accident rates, a more mobile population, unavailability of physicians after regular working hours and the availability of emergency rooms 24-hours a day, fewer general practitioners, availability of costly equipment in the hospital, third-party reimbursement for primary care provided in the emergency room in contrast to lack of reimbursement for similar care outside the emergency room, and the fear of malpractice suits by private physicians.

In reacting to increased utilization, and more importantly in improving the quality of emergency medical care, many hospitals have established separate outpatient facilities for non-emergency patients and have instituted 24-hour physician coverage of the ER.

Communications -- An EMS system includes three basic types of communications:

--access to the system for people in need of emergency care;
--dispatch and coordination of response to the emergency;
--medical communications between ambulance personnel at the scene and physicians or nurses at the hospital.

Access to the system is generally obtained by telephone or in some cases by citizen band radios. People requesting help usually call either a single telephone number established specifically for emergencies or if a single number is unavailable they call their police department, sheriff's office, fire department, hospital or ambulance service. The number 911 (pronounced nine-one-one) has been established as a nationwide emergency number.

Public safety agencies, ambulances, medical personnel and others responding to an emergency generally communicate over two-way radios. This coordination is enhanced when a dispatcher, working from a central location, directs all of the respondents. Generally, this type of communication is brief, cryptic, and codified.

Medical communications are conducted by telephone or over emergency medical services frequencies in a manner compatible with an established communications plan.

Organization -- The multitude of agencies and individuals involved in an emergency medical services system necessitates excellent organization and planning. Careful delineation, prior to the emergency, of each agency's roles and responsibilities is essential to the success of an EMS system. The establishment of emergency medical services councils on a county and on a regional basis are one excellent mechanism of assuring interagency coordination and cooperation. EMS services must not only be coordinated within, but also between political boundaries such as cities, counties, and states.

A change which has come about in the past decade is regionalization of EMS systems. Instead of each community acting independently of others, all of those in a given area coordinate their efforts and pool their resources to provide the highest quality care to area residents at the least possible cost. Generally, EMS regions are organized around a major medical center. Federal EMS funding is provided to states to distribute on a regional basis.

The emergency medical services program was once considered to be primarily a public safety program. While the public safety component is an essential element, there is a growing realization that EMS, the care of critically ill and injured patients, is a medical program necessitating excellent medical input and control. Thus, a medical director of a local or a state program, is an important element. Because emergency medical services absolutely must include in-hospital and interhospital care and evaluation, the medical director's role in liaison with other medical professionals is vital to the system's success. Medical directors and control of the entire program is the key to a viable EMS organization and system. All elements must be aimed toward improved emergency patient care.

The EMS structure ensures the effective utilization of public safety agencies, consumer participation in system policy-making, provision of services without prior inquiry as to ability to pay, standardized record-keeping, public information and education, diseaster plans and data collection for evaluation.

Evaluation of the EMS system has come to be more heavily emphasized in the past few years. This is largely a result of a demand by the Federal government for proof of effectiveness of the improvements for which it has paid but also is a result of a need to know where imporvements are necessary. Still, evaluation efforts are in their infancy. For planning purposes, data on EMS need and effectiveness is yet forthcoming.

Within an EMS system service area and with the guidance of the system's medical director and physician advisors, the development of BLS and ALS protocols become extemely important. Based upon the latest advances in medical care, these protocols determine standards for treatment of emergencies. These protocols, 1) assist in the actual treatment of medical emergencies by having well-defined, step by step procedures, 2) serve as a standard and tool for lay and professional education, and 3) serve as a standard against which each participant's performance may be evaluated and recommendations for improvements and/or additional education programs may be made.

Protocols for the transfer of patients are important to assure, 1) appropriate procedures are carried out prior to transport to assure adequate patient stabilization, 2) adequate equipment and supplies accompany the patient, 3) properly trained personnel accompany the patient, 4) proper communications is maintained enroute, and 5) that the receiving personnel and facility are prepared to handle the patient. This helps assure that transfers are made in a systematic, planned fashion rather than on a haphazard, sporadic basis.

Acceptable laws and sufficient funding also come under the purview of the EMS organizational structure. Laws include those requiring the licensing or certification of ambulances, emergency personnel and medical facilities; coordinating the frequencies of two-way radio communications and the protection of people rendering first-aid at an emergency scene; and the establishment of penalties for people who knowingly fail to stop and help at the scene of a vehicle accident. When public funds are allocated to EMS, the EMS organizational structure is responsible for the proper allocation of these funds.

The following guidelines and criteria apply to an EMS system:

Costs

Emergency medical services should be viewed as a public service similar in stature to law enforcement and fire protection services. As such, funding for non-revenue producing aspects of EMS should be available through local governments.

EMS systems should be as cost-efficient as possible. Unnecessary duplication of communications, transportation and facilities should be avoided where possible. In cities with more than one hospital, centralization of emergency services should be studied.

Advanced Life Support systems should be implemented only in those areas where it is financially feasible and beneficial. They should be implemented only in those communities whose Basic Life Support services are fully-operational, completely-organized and at a level where Advanced Life Support can be added with minimum costs. A financial feasibility study of these services should be conducted before they are established.

Both Basic and Advanced Life Support systems should be organized on a regional level and facilities within those regions should be categorized according to their critical care capabilities.

In rural areas, QRUs should be considered as an alternative to an ambulance service based in every community.

Availability

EMS should be available 24 hours a day. At least one hopsital in each EMS system should have 24 hour physician coverage in the emergency room. A sufficient number of ambulances should be available to respond to 95 percent of requests for assistance in the EMS area within not more than 30 minutes. In rural communities where ambulances are not economically feasible, QRUs may provide essential patient stabilization until an ambulance arrives. An Advanced Life Support system also should be available 24 hours a day, with 24 hour physician coverage in at least one hospital's emergency room. Physician specialists should be available on at least an on-call basis 24 hours a day. Advance Life Support does not have to be available in every community. However, a regionwide secondary transport system to assure high quality patient care during inter-hospital transportation should be available.

Accessibility

People should be able to request emergency medical services and/or other emergency assistance through a single-number telephone access, preferably the 911 system. At least one facility with minimum life-saving capabilities should be within 60 minutes travel time from the scene of the emergency. The vertical categorization of facilities, combined with treatment protocol development by medical professionals, will help to assure that both basic stabilization is received by the patient and that, if necessary, arrangements are made for transfer of the patient. There should be ready access to specialized critical medical care units when dictated by the patient's condition.

Continuity

EMS personnel responding to an emergency call should be dispatched by a trained dispatcher located at a central dispatch center capable of coordinating all emergency assistance.

There should be a well-established secondary transportation system with prior plans made regarding the best method of transferring critical patients, including transfer protocols. Every effort must be made to continue care in transit at a level comparable or above that received at the original hospital.

An EMS resource inventory should include a list of available follow-up and rehabilitative care. Standardized patient recordkeeping also is nessessary for continuity.

A disaster plan, specifying all emergency agencies' roles in the event of a disaster, should be established and tested at periodic intervals.

Acceptability

Public education and information, with emphasis on first-aid and CPR should be an integral part of the EMS system. All patients should be treated without prior inquiry as to ability to pay.

Quality

All EMS personnel should be properly trained and certified. Because of the extreme importance of the initial few minutes in medical emergencies, as many of the general public as possible should be trained in CPR, first-aid and EMS system access. Public safety personnel (law enforcement officers, firemen, ski patrols, search and rescue units, etc.) should be trained to a level commensurate with their role in their community concerning EMS delivery. This may be Advanced First Aid, Crash Injury Management, or EMT training. By state law, ambulance personnel must be trained to at least Advanced First Aid Level. EMT training is considered far superior and is highly recommended.

Personnel accompanying critical patients during secondary transfer should be critical care nurses, or, in some cases, paramedics or Advanced EMTs. Those individuals delivering pre-hospital Advanced Life Support must be physicians, registered nurses acting under proper authority, or properly trained and certified paramedics. Medical control of pre-hospital and inter-hospital Advanced Life Support is an absolute necessity. Pre-hospital ALS cannot be given independent of a well-organized EMS system with medical control. Emergency department nurses and physicians throughout the state should receive regular, updated instructions in the handling of emergencies. There should be continued peer review of quality of emergency medical care delivered. Dispatch personnel should receive instruction in dispatching techniques, radio communications and the handling of medical emergencies.

The EMS system should be periodically reviewed and evaluated for its effectiveness and for the quality of care rendered. This should be conducted by the state EMS Bureau, the Professional Standards Review Organization, the state and local medical directors, and appropriate hospital committees.

Hospital emergency rooms should meet minimum staffing and equipment standards set by the state Licensing and Certification Bureau.

2.0 CURRENT STATUS OF SERVICE IN MONTANA, INVENTORY

The Montana EMS system is divided into three regions and six subregions, as shown in Figure 1. These regions differ from Health Systems Agency areas and the Governor's planning regions. The EMS regions were chosen on the basis of medical care service patterns and the need for emergency care as well as funding feasibility under federal EMS grants. Basically, the region lines are drawn from north to south, dividing the state into thirds. Each region has a main medical center (as required by the Federal EMS Act), with Missoula serving the western third, Great Falls the central area, and Billings the eastern portion of the state. Kalispell, Butte, Helena, Bozeman, Havre, Lewistown, Glasgow, and Miles City are considered secondary medical centers by the EMS Bureau.

Incidence, Prevalence, and Mortality

The actual need for any type of health care service is largely determined by the frequency of illness, injury or death within the population that service is covering. However, obtaining reliable estimates of the number of illnesses or injuries which may require an emergency response, or of the number of deaths which may have been prevented by proper emergency medical care, is difficult, not only in Montana, but in the nation as a whole. The major reasons are varying definitions of "emergency", inconsistent reporting of emergencies, use of the EMS system by non-emergency patients, and general lack of data relating to incidence and prevalence of illness and injury.

One indicator of the need for emergency care is mortality statistics relating to heart disease and accidents. It is estimated that 5 to 20 percent of deaths resulting annually from heart disease might be prevented if the public were educated to recognize the symptoms of heart attacks and if comprehensive EMS systems were in place. Studies also suggest that deaths from vehicular accidents alone could be reduced by 15 to 20 percent by proper medical care at the scene of the accident or enroute to an emergency facility.[2]

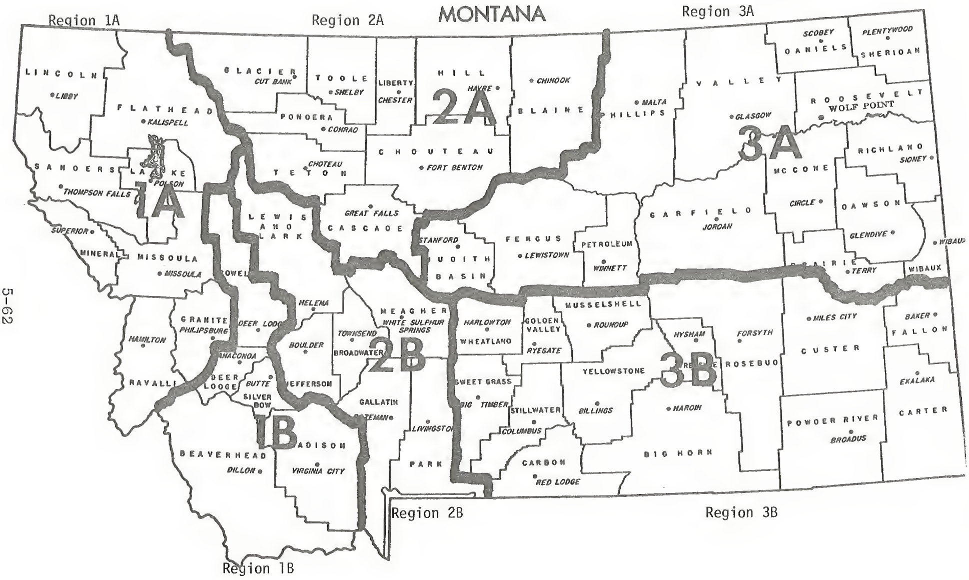
In Montana, as in the United States as a whole, heart disease was the leading cause of death in 1976. Thirty-two percent (2,178)[3] of the 6,733 deaths in Montana in 1976 were attributed to heart disease. Acute myocardial infarction (heart attacks) accounted for 44.2% (963) of the heart disease deaths. However, it should be noted that heart disease death rates appear to be decreasing in Montana and nationwide.

Accidents, poisonings, and violence, the major cause of death for persons under 35 years of age, accounted for 11.3 percent (763) of the deaths in Montana in 1976. Motor vehicle accidents caused 291 deaths, or 4.3 percent of the total. Injuries from motor vehicle accidents in Montana reached over the 9,000 mark.[4] Alcohol was a major factor in Montana's highway deaths--more than one-third (132) of those persons killed on the state's road had been drinking.[5]

Montana's accident mortality rate is considerably higher than the national rate. In 1975, the overall accident rate nationwide was

FIGURE 1

EXHIBIT 1
Montana EMS Bureau
EMS REGIONS



48.4 per 100,000 population, while for Montana the rate was 78.1 per 100,000. The motor vehicle accident rate in 1975 was 21.5 nationally and 37.7 in Montana.[6]

Poisonings, both accidental and self-inflicted, accounted for 46 deaths in Montana in 1976, and the poisoning death rate for the past 5 years in Montana has been considerably higher than the national rate.[7]

Thirty-eight persons died as the result of homicide and 129 persons committed suicide in Montana in 1976.[8]

Trained Manpower

During 1977, more than 10,000 Montana citizens were trained to perform CPR.[9] In 1978, the number of people taking CPR classes is expected to double. The American Red Cross and the Montana Heart Association have developed a CPR curriculum which has been taught, and will continue to be taught, in communities throughout the state. Such classes are often incorporated into the grade and high school curriculum. There are currently six or seven Quick Response Units operating throughout the state. Ski patrols and Search and Rescue Teams also provide emergency care in many areas of Montana.

In 1977, the State had 1,393 ambulance attendants. Of these personnel, 826 (59 percent) were Emergency Medical Technicians, 446 were trained to the Advanced First-aid level by the American Red Cross (the minimum level of training under state law), 41 were registered nurses, 8 were licensed practical nurses and 72 had some other training considered equivalent to the American Red Cross Advanced First-aid Training. A breakdown by region and a comparison with 1976 is provided in Table 1.

It should be noted that only 326 EMTs were working as ambulance attendants, even though 2,692 persons had been trained and certified as EMTs.

Eighty-one hour EMT training courses are conducted in local communities and at educational institutions throughout the state. This course, along with the successful completion of a nationally-accepted proficiency examination, is required before a person is certified as a Basic EMT. Certification, according to state law, is by the Montana Board of Medical Examiners with the assistance of the EMS Bureau. Recertification is contingent upon accumulation of continuing education points and recommendations by a local EMT Course Committee. Continuing education programs for Basic EMTs have been sorely lacking.

A longer, more comprehensive course is specified for Advanced EMT certification. Advanced EMT training is to be based upon a nationally accepted curriculm. It is possible there will be several levels of Advanced EMT Certification allowing paramedics to function more adequately in a rural, sparsely populated state. At this time paramedic courses are not being taught in Montana and no one has been certified as an Advanced EMT by the Montana Board of Medical Examiners.

TABLE 1

The information listed below provides a statewide and regional breakdown of the number of ambulance personnel, by level of training, for 1976 and 1977. This information was taken from the 1977 ambulance license applications.

	EMT	ANRC	RN	LPN	OTHER	TOTALS
STATEWIDE:						
1976	734 (54.77%)	470 (35.07%)	53 (3.95%)	6 (.44%)	77 (5.74%)	1,340
1977	826 (59.29%)	446 (32.01%)	41 (2.94%)	8 (.57%)	72 (5.16%)	1,393
REGION 1:						
1976	279 (48.1%)	211 (36.37%)	16 (2.75%)	2 (.34%)	72 (12.41%)	580
1977	317 (54.65%)	183 (31.55%)	8 (1.37%)	2 (.34%)	70 (12.06%)	580
REGION 2:						
1976	202 (63.12%)	102 (31.87%)	12 (3.75%)	3 (.93%)	1 (.31%)	320
1977	221 (63.14%)	121 (34.57%)	4 (1.14%)	4 (1.14%)	0	350
REGION 3:						
1976	253 (57.5%)	157 (35.68%)	25 (5.68%)	1 (.22%)	4 (.97%)	440
1977	288 (62.20%)	142 (30.66%)	29 (6.26%)	2 (.43%)	2 (.43%)	663

Data on dispatchers is unavailable. Dispatcher training is provided through the Law Enforcement Academy in Bozeman and through the Central EMS Dispatch Center in Missoula.

Four physicians in Montana listed themselves as specialists in emergency medicine in a recent Health Planning and Resource Development Bureau survey.

Some continuing education in emergency medicine for physicians and hospital personnel is available through a variety of sources. However, a well organized, uniform statewide continuing education program has not been conducted.

The EMS Bureau and the Montana Heart Association have jointly sponsored several Advanced Cardiac Life Support (ACLS) instructor courses. ACLS Courses are continuing to be offered on a local and a regional basis throughout the state.

Through a program initiated by Mountain States Regional Medical Program, six learning-center hospitals and some alternates have been established to provide educational services to all the hospitals in their districts. These training programs cover a broad range of medical topics, including emergency medical care.

Transportation

In 1976, Montana had 102 public ground ambulance services operating a total of 130 fully-equipped vehicles. Table 2 provides a breakdown by region and category of service. In addition, there are eight industrial-owned services not included in the table because they provide services primarily just to the particular firm that owns and operates them.

Only one county, Golden Valley, does not have an ambulance service. However, some of the ambulance services in Montana's smaller communities have problems staffing their ambulances and meeting state ambulance licensing requirements.

Quick Response Units (QRUs) which are non-transport teams of trained and equipped emergency personnel, have been and are being established in several areas of Montana as an alternative to costly, difficult to staff ambulance service. QRUs are dispatched at the same time as an ambulance which may be quite a distance from an emergency. The QRUs arrive earlier and provide BLS until an ambulance arrives.

A number of air taxi services in Montana provide medical transportation. Some out-of-state critical care centers specially staffed for a particular patient have air ambulances which they can fly into Montana to pick up that patient. Military planes also are available on request as air ambulances. However, there is no organized or coordinated air transportation or secondary transport system in Montana; hospitals sometimes experience delays in arranging for air transportation and some airplanes used in an ambulance capacity are ill-equipped for the job. No standards have been established for air ambulances in the State.

TABLE 2

MONTANA EMS BUREAU
SUMMARY OF EXISTING AMBULANCE CAPABILITY IN MONTANA BY EMS REGION
1976

	REGION 1	REGION 2	REGION 3	TOTAL
Ambulance Services				
Private	6	4	7	17
Local Government	7	10	15	32
Volunteer	21	11	16	48
Other	0	2	3	5
TOTAL	34	27	41	102
Ambulance Vehicles (year)				
1960 and earlier	12	5	3	20
1961 - 1965	7	7	11	25
1966 - 1970	13	13	17	43
1971 - 1975	15	14	17	46
TOTAL	47	39	48	134
Ambulance Vehicles (type)				
Suburban	5	7	6	18
Coach	17	17	13	47
Van	15	9	23	47
Station Wagon	5	3	5	13
Modular and other	5	3	1	9
TOTAL	47	39	47	134
Vehicle Design & Equipment				
Meets State Design Criteria	25	20	22	67
Minimum Equipment by State Law	47	39	48	134
Extrication Equipment	10	5	10	25
Cardiac Monitoring Equipment	0	2	0	2
Personnel				
Services with:				
No EMT's	2	2	8	12
1% - 25% EMT's	7	6	6	20
26% - 50% EMT's	11	7	11	29
51% - 75% EMT's	7	5	7	19
76% - 100% EMT's	7	7	8	22

NOTE: All non-EMT's are trained to a level of Red Cross Advanced First Aid as required by State Law.

SOURCE: Montana Emergency Medical Services Bureau.

Facilities

Montana has 62 acute care hospitals serving the general population. Each hospital has an emergency room with at least a physician on call, as required by state medical facilities licensing laws.

The five hospitals listed below have physicians in the emergency room 24 hours a day:

- St. Patrick Hospital, Missoula
- Billings Deaconess Hospital, Billings
- St. Vincent's Hospital, Billings
- Montana Deaconess Medical Center, Great Falls
- Columbus Hospital, Great Falls

Table 3, American Hospital Association[11] statistics on emergency room utilization, shows that utilization in the United States has been increasing at a tremendous rate over the past 20 years. Between 1955 and 1970, utilization was increasing at about 20 percent per year. Between 1970 and 1974, this slowed down to about 16 percent per year. Between 1974 and 1975, utilization increased only 6.5 percent. From 1975 to 1976 it was back up to 7.2 percent. In Montana, and other Mountain region states, the rate of increase in the past couple of years has been slightly higher, as has been the overall percent of the population visiting the emergency room.

A specific source of information on hospital emergency room utilization in Montana is a survey conducted by the Montana Emergency Medical Services Bureau in January 1978. Table 4 presents the information gathered from this survey, including the approximate number of emergency room visits statewide and in the three regions, and a breakdown of types of emergencies by critical care category.

It shows that 12.4 percent of those people visiting the emergency room were admitted to the hospital. Those admissions constituted 23.6 percent of all hospital admissions--a significant number.

Caution should be exercised in relying on hospital emergency room utilization data to guage the need for emergency medical services. Quite often non-emergency patients are treated in the emergency room, inflating the actual need for EMS. Also, current utilization does not necessarily reflect demand or need.

The EMS Bureau is conducting several pilot studies to obtain data about EMS from ambulance services and hospitals in the state. To date, this data is of little use because of low return rates from the reporting hospitals. However, one interesting trend is that a large percentage of emergency patients who come to the emergency room do not arrive by ambulance. For planning and evaluation purposes, more complete data is essential.

The State's critical care capabilities for high-risk infants, cardiacs, burns, and poisons have been addressed in previous components of the

TABLE 3

HOSPITAL EMERGENCY ROOM VISITS
1950, 1970, 1974, 1975, & 1976

	1955*	1970*	1974	1975	1976
United States	10,465,788	42,692,761	71,033,863	73,448,051	76,674,145
Visits/1000 persons	64	212	N/A	288	278
% Increase		20.5 avg. annual (307.9 over 15 yrs)	16.6 avg. annual (66.4 over 4 years)	6.5	7.2
Mountain States	N/A	N/A	2,819,783	3,003,078	3,219,985
Visits/1000 persons	N/A	N/A		320	300
% Increase from previous year	N/A	N/A	N/A	6.5	7.2
MONTANA	N/A	N/A	191,646	222,979	240,133
Visits/1000 persons	N/A	N/A	N/A	320	300
% Increase from previous year	N/A	N/A	N/A	16.3	7.7

Note: Overall increase from 1955 to 1976: 632.6%

*Source: American Hospital Association, Emergency Services, The Hospital Emergency Department in an Emergency Care System, Chicago, Illinois, 1972.

Source: American Hospital Association, Hospital Statistics, Chicago, Illinois, 1974, 1975, 1976.

TABLE 4

EMS BUREAU SURVEY OF MONTANA HOSPITALS - 1977

	Region 1A[1]	Region 1B[2]	Region 1	Region 2A[3]	Region 2B	Region 2	Region 3A[4]	Region 3B	Region 3	MONTANA
ER Visits	46,966	30,792	77,758	48,131	20,687	68,818	23,426	53,855	77,281	223,857
Admits from ER	6,558	3,664	10,222	8,474	3,166	11,640	1,763	5,894	7,657	29,519
Hospital Admissions	31,272	14,746	46,018	29,477	14,419	43,896	10,463	24,965	35,428	125,342
Motor Vehicle Accidents	675	460	1,135	147	296	443	268	443	711	2,289
Single-born Immature infants	108	43	151	84	71	155	23	100	123	429
Head Injuries	508	154	662	497	232	729	213	329	542	1,933
# Died	8	0	8	12	0	12	8	11	19	39
Spinal Injuries	13	4	17	23	5	28	4	19	23	68
# Died	0	0	0	2	2	4	0	0	0	4
Suicides/Attempted Suicides	119	32	151	10	24	34	36	65	101	286
# Died	1	1	2	1	0	1	0	2	2	4
Burns	22	9	31	33	9	42	16	23	39	112
# Died	0	0	0	0	1	1	1	1	2	3
Poisonings	218	84	302	260	139	399	159	204	363	1,064
# Died	2	0	2	4	1	5	1	1	2	9

(1) Hamilton missing.
(2) Dillon, Ennis, Sheridan missing. 87% of beds included.
(3) Browning and Choteau missing. 98% of beds included.
(4) Glasgow missing, ... 79% of beds included.
(5) Baker, Circle, Columbus, Forsyth, Hardin, Red Lodge missing. 82% of beds included.

Montana Health Systems Plan. Their capabilities, along with those for trauma, spinal cord injury, drug overdose, acute alcohol intoxication, and psychiatric emergencies will be addressed in the vertical categorization plan being developed by the EMS Bureau in conjunction with the Montana Hospital Association and the Montana Medical Association. It is important to note that some emergency psychiatric services are delivered by mental health professionals outside the traditional EMS network. Coordination between the EMS system and Mental Health Centers is essential.

Communications

Six 911 access centers are located in Montana at Billings, Choteau, Conrad, Glendive, Great Falls, and Missoula. In addition, a number of other areas in the state have single access through a number other than 911. Elsewhere, access to the EMS system is obtained through police, sheriff or fire departments, individual ambulance services, or hospitals.

More than 95 percent of the public ambulances in the state are equipped with some form of two-way radio capabilities. Many hospitals also have hospital-to-ambulance communications capabilities. However, Northeastern Montana and Southwestern Montana are lacking an established hospital-to-ambulance communications system.

Hospital-to-hospital communications are generally conducted over the telephone. Radio equipment is used as an emergency or back-up system for this capability. However, the radio link between hospitals is often non-existent because of topographic and geographic barriers. An integrated microwave system can solve this problem. Such a system has been established in Region I, Northwestern Montana.

Organization

A draft organizational chart of state level emergency medical services is included as Figure 2. This clearly demonstrates the complexity of emergency medical services and the variety of agencies and individuals involved. Working relationships have been well established among the EMS Bureau, the EMS Committee of the Montana Medical Association, the Montana Heart Association, and the Wrangler Division of the American National Red Cross. Co-sponsorship of education programs for the general public and for professionals is commonplace.

There is currently a statewide medical director and critical care consultants for the EMS Bureau. These individuals are paid with Federal EMS Act funds. In addition, there are medical directors and critical care consultants in each sub-region which has received Federal EMS Act funding. The state medical director is responsible for liaison and coordination of activities.

EMS Councils, designed to facilitate inter-agency cooperation and planning, are in place in 32 of the 56 counties. (Figure 3) Regional EMS Councils are active only in Region 2A at this time, but are planned in all funded regions.

FIGURE 2

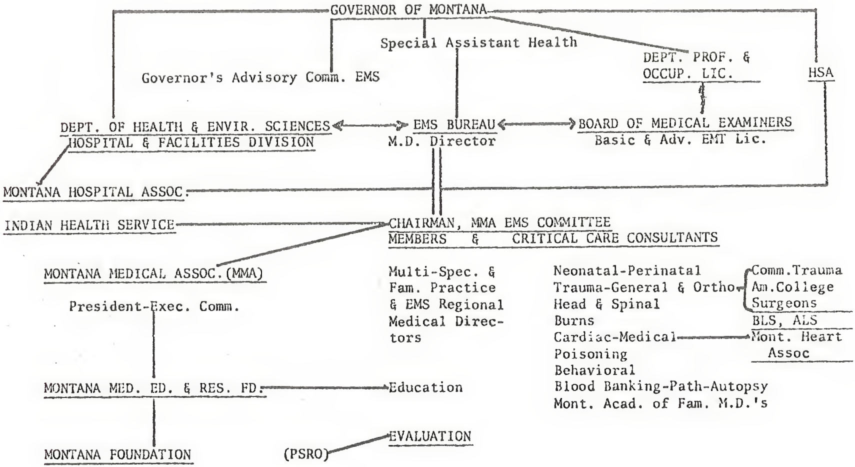
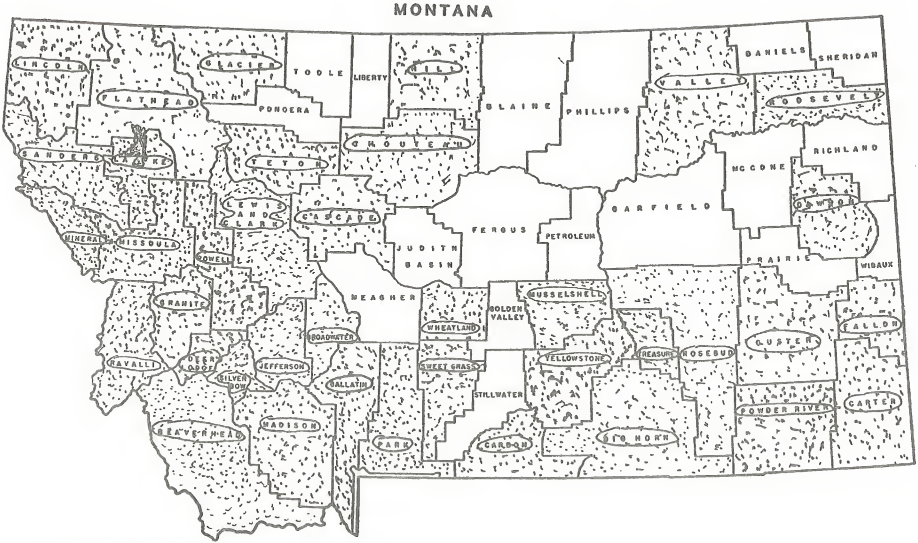

GOVERNOR OF MONTANA
Special Assistant Health
Governor's Advisory Comm. EMS
DEPT. PROF. & OCCUP. LIC.
HSA
DEPT. OF HEALTH & ENVIR. SCIENCES
HOSPITAL & FACILITIES DIVISION
EMS BUREAU
M.D. Director
BOARD OF MEDICAL EXAMINERS
Basic & Adv. EMT Lic.
MONTANA HOSPITAL ASSOC.
INDIAN HEALTH SERVICE
CHAIRMAN, MMA EMS COMMITTEE
MEMBERS & CRITICAL CARE CONSULTANTS
MONTANA MEDICAL ASSOC. (MMA)
President-Exec. Comm.
Multi-Spec. & Fam. Practice & EMS Regional Medical Directors
Neonatal-Perinatal
Trauma-General & Ortho
Head & Spinal
Burns
Cardiac-Medical
Poisoning
Behavioral
Blood Banking-Path-Autopsy
Mont. Acad. of Fam. M.D.'s
Comm. Trauma Am. College Surgeons
BLS, ALS
Mont. Heart Assoc
MONTANA MED. ED. & RES. FD.
Education
MONTANA FOUNDATION
(PSRO)
EVALUATION

FIGURE 3



No. 1050 — County Outline Map

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▨ Counties with EMS Councils

Each county is encouraged to appoint one key individual who is generally responsible for EMS activities within the county. Ideally, this should be a paid position which also functions with other emergency activities.

Written disaster plans, standard recordkeeping systems and mutual aid agreements are important ingredients at a local and a state level.

The EMS Bureau, the agency officially designated by state law as responsible for EMS system development, has received HEW funds for improvement of EMS. These funds are available only on a regional basis; thus, funds have not been available statewide. The EMS Bureau and the Montana Division of Highway Traffic Safety have jointly decided to expend Department of Transportation EMS funds in these regions not receiving EMS Act funding.

There are several levels of HEW funding available. Section 1202 provides one year of funding to plan a Basic Life Support system and now provides one year of funding to plan an Advanced Life Support system. Section 1203 provides two years of funding on a Regional Basis for the development of a Basic Life Support system and Section 1204 provides two years of funding for the development of an Advanced Life Support system. All areas of the state have received Section 1202 funding. Regions 1A and 3B have each received two years of 1203 funding. Region 2A has received one year of 1203 funding. For fiscal year beginning July 1, 1978, the following grant applications were submitted:

Region 1A - Section 1204 (1)
Region 3B - Section 1202 (2)
Region 1B - Section 1203 (1)

However, only Region 1A received funding. Table 5 shows the dollar amounts received by each region during the past four years.

A major problem in delivering emergency medical services in Montana is the rural nature of the state. Because of the physical distances between people, time; which is a crucial element in any EMS system, is even more crucial. It may take longer to reach a place where one can call for assistance. It may take longer for assistance to reach the emergency scene, and it may take longer to go from the emergency scene to a medical facility. And once the patient reaches that medical facility, if it is in a rural community, there may not be many of the more specialized services or personnel that the patient needs.

The real dilemma is that a rural state is where emergency medical services are most desperately needed; however, this is also where they are the most difficult to provide. It is difficult for rural, volunteer ambulance personnel to dedicate the time and money necessary for continuing education. Because they see only a small actual number of true emergencies a year, rural ambulance attendants' skills deteriorate quickly without regular, extensive practice sessions and continuing education.

Public information and training in a rural state become more difficult. Even the continuing education of medical professionals becomes difficult.

It is not easy for a rural nurse or physician to leave a community without medical coverage while they attend training sessions. However skill degradations among medical professionals also presents a problem.

The dispersal of personnel and the terrain often makes it nearly impossible to provide adequate ambulance service. Economics, lack of trained personnel and low volume of emergency calls severely limit the placement of ambulances in each community and make the strategic location of QRUs even more essential.

A comprehensive emergency medical services communications system--both dispatching and medical communications--is essential to improve patient access and care. However, the mountainous terrain and lack of a statewide microwave communications system complicate the establishment of adequate communications systems. The diversity of telephone companies (20 operating telephone companies in Montana) makes more difficult the establishment of single access telephone numbers.

Lack of financing at a state and a local level for improved emergency medical services is obviously a major impediment.

3.0 ESTIMATE OF SERVICE NEED (NEEDS ASSESSMENT)

Trained Manpower

There is a continual need in Montana for training and continuing education for emergency medical technicians, emergency physicians, emergency nurses, emergency dispatchers, and other EMS personnel. This is especially true in rural areas of Montana where a relatively low volume of emergencies results in serious skill degradation of EMS personnel.

The EMS Bureau estimates, as a general rule of thumb, a need for approximately 12 EMTs per ambulance service. Montana has 102 ambulance services, indicating a need for about 1224 EMTs. A few Montana hospitals also employ EMTs, as do Quick Response Units and the Montana EMS Bureau.

There are several problems in using the number of ambulance services to determine the need for EMTs. Forty-eight of these services rely on volunteer personnel attendants and many volunteer ambulance attendants are trained only to the minimum Advanced Red Cross training level. (Many volunteer ambulance services have difficulties in obtaining a minimum number of attendants.)

In the past, the EMS Bureau has emphasized the training of as many EMTs as possible. This resulted in a large number of people trained as EMTs who were not using their skills as ambulance attendants, members of QRUs, or hospital personnel. The Bureau is re-evaluating training needs, emphasizing the adequate training of EMTs actively involved in the EMS system. The new EMT examination process has strongly underlined the need for better EMT original training and practical, skills-oriented continuing education. Related to this, current minimum standards for EMT training may not be adequate. There is a need to re-evaluate these standards.

One problem with EMT training is the expense to the individual trainee; particularly volunteers. Costs borne by the volunteer include travel to 81 hours of courses and a $35 testing fee.

An EMT geographic based needs assessment is needed along with an ambulance placement and QRU placement strategy.

The need for EMS dispatchers and dispatcher training also needs to be assessed, as does the need for physicians and nurses with emergency medicine specialization. The physician manpower component of this Health Systems Plan indicates a need for primary care in fourteen counties. It is desirable that some form of primary care be recruited to these areas and that EMS transportation and manpower systems in these areas be developed to the maximum extent possible.

There is a definite need for improved emergency care training for physicians and nurses in Montana, particularly in rural areas. There should be ACLS training for physicians and nurses active in primary care. There should be emergency department nurse training programs and trauma nurse training programs throughout the state. There should be practical skills training programs for physicians as well as updated training sessions in each of the critical care areas. Proper early physician management of the emergent patient is a vital component of an effective EMS system.

Transportation

Currently, there is no comprehensive assessment of statewide EMS transportation needs--primary, secondary, and rescue. There is a need for a written placement strategy for both ambulances and QRUs followed by a financial plan to implement the strategy. The Emergency Medical Services Bureau has drafts of placement strategies and is working to improve and to finalize them.

Ambulance inspections indicate a need for updating some emergency vehicles. The EMS Bureau, through Federal provisions, has some funds for such modernization. It determines its funding priorities with a formula based on the percentage of Federal land within ambulance service's area; the distance to other ambulance services, the number of square miles in an ambulance service's area, the population of the ambulance service's base community, and the current county ambulance funding level.

Standards are needed for the development of secondary transportation systems, such as ALS vehicles and air ambulances. Alternatives to costly ambulance services such as QRUs need to be explored in detail and proposal made for statewide institution of QRUs carefully tied in with the overall EMS system.

Facilities

Most of Montana is within the standard access time of 60 minutes travel time to a medical facility. The EMS Bureau currently is conducting a survey of emergency and critical care capabilities in Montana hospitals. When completed, this survey will be used to vertically categorize the hospitals. It should also provide information about EMS facility needs.

Communications

Only about 10 percent of Montana's population currently has the services of a 911 access system, with such services planned for another 30 percent of the population. Some other single-number access system is available to another large portion of the population. Still, in many areas of the state, people requesting emergency assistance are faced with a time-consuming decision as to who to call. This is especially difficult for visitors. There is a need to implement a central telephone number and dispatch system in each county in Montana. Occasionally counties may combine dispatch facilities. It is important that each resident and visitor has a single access telephone number which assures the proper dispatch of all emergency aid. There is a need to coordinate with other Federal funding agencies (e.g., Law Enforcement Assistance Administration) to assure a uniform approach toward an encouragement of 911.

In many counties, public safety and EMS personnel coordination is needed in dispatching emergency services.

Statewide implementation of high band emergency radio band capabilities also is required.

Organization

One of the most pressing needs of the EMS system in Montana is ongoing funding.

Applying for Federal EMS funds is a time-consuming and often frustrating task, with ultimate control of priorities and criteria in the hands of the Federal government instead of the state or local areas. It is necessary for Montana to establish funding priorities and criteria on its own. These priorities must include statewide establishment of BLS services and the criteria must include accessibility to health care services.

There also is a need to develop state and local funding sources.

There is a need for more formalized regional emergency medical services councils with adequate personnel and financing to assure the development and continued operation of a regional emergency medical services system. This council or entity should have a formal relationship with the EMS Bureau but the Bureau should not actually operate EMS systems. There is a need for a system of training coordinators to work with ambulance services and other EMS providers to upgrade capabilities.

There is a need for a County EMS Coordinator in each county or shared among several counties. EMS Councils are needed in many counties and are in desperate need of revitalization in some counties. Technical assistance from the EMS Bureau needs to be expanded and upgraded.

There is a need for a statewide EMS plan which clearly delineates all needs and makes specific plans for their corrections. This should be a specific implementable plan which can be presented to the Montana legislature. This plan should clearly specify funding needs. There is a definite need for more adequate funding of emergency medical services at both the state and the local level.

Standards are needed regarding the development of ALS systems.

TABLE 5

FEDERAL EMS FUNDS RECEIVED IN MONTANA

Planning Grant 1202[1]	$118,235
First Year 1203 Grant[2]	$545,703
Second Year 1203 Grant[3]	$423,326
First Year 1203 Grant[4]	$325,350
First Year 1204 Grant[5]	$378,609

1. During FY 75-76 this provided funds for 1202 planning activities in EMS Regions 1B, 2A, 2B, and 3B. This was subsequently extended an additional year.

2. This grant, awarded for FY 75-76, provided funds for Basic Life Support implementation in Regions 1A and 3B as well as state overview activities.

3. This provided funds for FY 76-77 for Basic Life Support implementation in Regions 1A and 3B as well as state overview activities. This was extended to the next fiscal year.

4. This provided funds during FY 78-79 for Basic Life Support implementation in Region 2A as well as state overview activities.

5. This provides funds during FY 78-79 for Advanced Life Support implementation in Region 1A as well as state overview activities.

FOOTNOTES

1. Montana Emergency Medical Services Bureau.

2. Sadler, Alfred M.; Sadler, Blair L.; and Webb, Samuel B.; Emergency Medical Care: The Neglected Public Service, The Connecticut Experience, p. 4.

3. Bureau of Records and Statistics, Montana Department of Health and Environmental Sciences, Montana Vital Statistics, 1976, p. 26.

4. Montana Highway Patrol, Annual Report, 1976.

5. Ibid.

6. Monthly Vital Statistics Department, Natinal Center for Health Statistics, Vol. 25, Number 11, Supplement, February 11, 1977.

7. Bureau of Records and Statistics, op. cit., 1972-1976.

8. Ibid., 1976.

9. Emergency Medical Services Bureau, Montana Department of Health and Environmental Sciences, Regional Abstracts, 1977.

10. American Hospital Association, Hospital Statistics 1974-1976, and The Hospital Emergency Department in an Emergency Care System, 1972.

CHAPTER 6

PRE-CARE AND PREVENTIVE HEALTH SERVICES

Pre-care and preventive services include measures taken to preserve healthful conditions as well as measures taken by individuals to improve and maintain their own levels of well-being. In this chapter only one service (preventive dental services) is addressed. As shown in Table 1, this component can be categorized as both community health promotion and prevention and detection services. Like other preventive services, it is usually found in community based settings. The National Guidelines, as yet, do not address this component of health care.

	CATEGORIES OF SERVICE							SETTINGS						
SERVICES	Community Health Promotion	Prevention & Detection	Diagnosis & Treatment	Habilitation & Rehabilitation	Maintenance Services	Support Services	Enabling Services	Community	Home	Mobile	Ambulatory	Short-Stay	Long Stay	Free Standing Support
Preventive Dental Services	x	x						X						

TABLE 1 - Subject, Categories of Services and Settings Addressed in the Pre-Care and Preventive Health Services Components

REVIEW AND COMMENT ONLY

6.1

SUMMARY

PREVENTIVE DENTAL SERVICES

This component discusses preventative dental health programs, provides background data for the assumption that such programs are necessary, and details several alternative methods of achieving a twenty (20) to fifty (50) percent reduction in dental cases. The fact that tooth decay and peridontial disease are universal ailments which cause enormous suffering and expense, lends credibility to the importance of preventative dental programs which can reduce the incidences of these diseases.

The efficiency of fluoride in natural and artificially treated water supplies has been adequately demonstrated and documented. Other methods of dispensing fluorides are:

1. Mouth Rinses
2. Fluoride Toothpastes
3. Topical Fluoride Applications

The most effective is the fluoridation of public water supplies. Even though almost half the nation drinks fluoridated water, its acceptance in Montana is severely limited. Educating the public as to the low-cost, low-risk and high degree of effectiveness of fluoridation is necessary. Studies by various communities have borne out the beneficial long-term effects of fluoridation.

In addition to fluoridation and dental health education, dental screening and periodic dental examination are necessary adjuncts to effect preventative dental health programs. These preventative dental health strategies are predicated on community and state acceptance of the dental health problems in Montana and the long-term benefits to be derived from their implementation.

Approved by the HSA
Governing Board 7/14/78

PREVENTIVE DENTAL SERVICES

GOALS, OBJECTIVES, AND RECOMMENDATIONS

Dental health should be recognized as an essential component of the comprehensive health care system. It has been scientifically demonstrated that early and sustained preventive efforts and treatment, which generally can be easily applied and instituted at relatively low costs, will reduce serious dental problems and costly dental treatment later in life. All Montanans should be aware of the benefits attributable to preventive dental measures and have access to these measures, especially school aged children.

Unfortunately, current data on the incidence of dental caries is not available for Montana, although past studies have indicated a DMF rate ranging from 1.51 to 5.8 among the 30 communities surveyed. (The DMF rate is the number of decayed, missing or filled teeth (DMF) divided by the number of children examined.) However, it is assumed that state and local statistics on the incidence of dental caries do not significantly differ from the national statistics. Consequently, the primary goal is to reduce dental caries and improve the oral health among school children in Montana. Specifically, the number of children up to 14 years of age with dental caries should be reduced by at least 25 percent. In concert with this goal, the following objectives and recommendations are suggested:

1) In areas where public water supplies are not fluoridated, local governments should be encouraged to study the feasibility of and solicit support for water fluoridation as a public health measure.
2) By 1985, fluoride mouth rinse programs should be available to all elementary school children not receiving the benefits of fluoridation elsewhere.
3) By 1985, an established dental health program involving screening and referral services should exist for all elementary school children in Montana. Presently, about 20 percent of the elementary school population receive these services. A statewide screening program would require 10 hygienists to cover Montana.
4) By 1985, comprehensive dental education programs should be serving 90 percent of the elementary school population in Montana, approximately 50 percent of Montana's elementary school population now receive these benefits.
5) By 1985, a pilot dental education program directed to expectant mothers should be initiated. This program should stress the dietary practices which are not detrimental to the dental health of the infant.
6) The Office of Public Instruction and the Bureau of Dental Health should encourage the development of a dental hygiene course in the curriculum of all elementary schools.

1.0 Background

The purpose of this document is to describe those publicly sponsored dental prevention programs in Montana and to recommend HSA policy toward the future expansion and maintenance of these efforts. The influence of the Health Systems Agency in this area is indirect, but this plan could be used in three ways. First, it could be used to guide HSA decisions and recommendations on A-95 comments and on the review of proposed uses of federal funds. Second, it could be used to initiate local programs through the allocation of Area Health Development Funds, if and when they become available. Finally, this document could be used to obtain legislative support for those dental prevention programs deemed most important.

Consequently, this document will not address those preventive services routinely and regularly offered by individual dentists in their practices nor the delivery of diagnostic and treatment services. The latter is implicitly addressed in the Dental Manpower component.

Preventive dental activities are important because next to the common cold, tooth decay and gum disease are the most universal diseases suffered by mankind, despite the fact that they are two of the most preventable diseases. The extent of oral health problems is demonstrated by the following statistics generated from the National Center for Health Statistics:

- 50 percent of all adults over 55 years of age have no natural teeth,
- 30 percent of the children under 18 years of age have never been to a dentist, and 14 percent of the total population have never received dental care,
- at age six, one out of every eight children have at least one decayed permanent tooth,
- by age 11, three out of every four children have tooth decay, and
- by the mid-teen years, 95 percent of all youth have an average of nine decayed, missing, or filled teeth.1)

Similarily, the Committee on Nutrition in 1972 concluded that dental caries is one of the most prevalent diseases for all age groups beyond infancy. A ten-state nutrition survey (Center for Disease Control) conducted in 1972 found that by age 10, more than 80 percent of all children surveyed in 1970 and 1971 had caries in permanent teeth.2)

Although no statistics are available, dental problems may also afflict the very young. Nursing bottle caries, nursing bottle syndrome, and bottle-propping caries are all synonomous terms for a devastating condition rendering many children under three years of age dental cripples. When an infant is given a bottle as a pacifier, often at bed time or during naps, the decreased rate of salivary flow during sleep renders the dentition more susceptible to acid production by plaque bacteria, resulting in the destruction of the anterior teeth. The lactose naturally present in cow's milk is not the major threat with respect to nursing bottle caries. Believed to be most damaging are the sweetened fruit-flavored drinks and sweetened fruit juices put into an infant's bottle. Also suspect is the presence of sucrose and corn syrup solids in a number of soy isolate-based and other milk-free formulas.3)

Periodontaldisease involves an infection of the gums and bones, which, if left untreated, leads to the deterioration of the bone and eventual loss of the teeth. The World Health Organization estimates that 80 percent of all teeth lost among people over 30 years of age is due to periodontitis. Proper dental practices acquired early in life, which are brushing, flossing, proper nutrition, and regular professional checkups, can prevent the onset of periodontal disease. Orthodontic care is also essential in preventing periodontal disease in that properly positioned teeth aid in proper brushing and flossing.

Most dental problems can be avoided through primary and secondary prevention measures. These preventive measures include:

- The use of fluorides,
- dental education programs concentrating on getting people to adopt proper nutritional practices, to brush after meals, and to floss daily, and
- dental examinations directed at early case finding and follow-up care.

1.1 Fluoridation

Fluoride is the most effective agent available to prevent tooth decay. Fluoride is one of many elements naturally occurring in the earth, and is found in varying amounts in almost all waters and soils.

The ability of fluoride to act as an anti-caries mechanism appears to be threefold and is related to whether it is a systemic fluoride or a topical fluoride. Systemic fluorides are ingested, usually through the water supply or as a liquid or tablet. This fluoride acts by changing the chemical composition of the tooth by hardening the tooth enamel, thus making the tooth less susceptible to decay. Enamel protects the tooth by resisting acid decomposition. The acid is produced by sugar-eating bacteria which congregate on the surface of the tooth. Systemic fluorides mostly affect developing teeth; little benefit accrues to the teeth once they are developed and have erupted into the mouth. Topical fluorides are those applied to the erupted teeth in the mouth. This type of fluoride can be applied by a dentist, by self application, or as a mouth rinse. The fluoride strengthens, or remineralizes, the tooth by counteracting the decalcification process of bacterial plaque. Finally, fluoride can act as an enzyme inhibitor by interfering with acid production on the tooth surface, thus decreasing the solubility of the tooth.

The benefits attributable to fluoride use are not limited to pre-teenage children. Although fluoride use is most beneficial during the developmental stage of teeth, it is still of some benefit to older people. For instance, fluoride mouth rinses have proven effective in reducing the incidence of cervical and exposed tooth root caries of the elderly.

Several methods of systemic and topical fluoridation are available. These include:

- fluoridating public water supplies,
- the daily use of fluoride tablets or vitamin tablets containing fluoride,
- fluoride mouth rinses,
- daily use of fluoride toothpastes, and
- topical fluoride applications done in the dentist's office.

Table 1 compares the cost and potential effectiveness of these methods.

Method of Fluoridation	Dollar Cost/Person/Year	Potential Reduction in Decay
Water Supply	$ .20 1)	50-60%
Fluoride Mouth Rinse	$ .50	20-50% 2)
Fluoride Tablets	$ 5.48 3)	Potentially same as water fluoridation 4)
Topical Fluoride Applications	$ 24.00-40.00 5)	40%
Fluoride Tooth Paste	$ 14.00-15.00 6)	15-30%

1) Based on American Dental Association estimates.

2) Assuming the rinse is administered weekly.

3) Based on retail value of prescription fluoride tablets, $1.50/100.

4) Potential reduction in decay experience dependent upon whether or not the fluoride tablet is taken every day. For best results, the procedure should be started in kindergarten and continued until the eighth grade. School sponsored programs realize a 20 to 30 percent reduction in decay experience.

5) Based on a charge of $12.00 to $20.00 per application administered twice a year in areas not receiving fluoridated water.

6) Assuming 7 ounces of fluoride tooth paste is consumed every 4-5 weeks at approximately $1.30/7 oz. tube.

TABLE 1 - A Comparison of the Unit Costs and Potential Effectiveness of Different Fluoride Programs

Water fluoridation continues to emerge as a controversial issue even though about 105,000,000 Americans drink fluoridated water. There is considerable debate in Montana on whether fluoridated water supplies are necessary. A bill requiring mandatory water fluoridation for Montana cities with populations of over 1,000 was discussed in the 1971 legislative session but failed passage. Therefore, there is no current mandatory requirement in Montana for fluoridated water supplies.

Water fluoridation is supported by the American Dental Association, American Medical Association, American Heart Association, National Cancer Institute, American Cancer Society, and the U.S. Public Health Service.

Water fluoridation is advantageous in that it is generally inexpensive and the entire community benefits from it regardless of economic or educational level, individual motivation, or the availability of dental manpower. No direct action is required of the individual. A major disadvantage of water fluoridation is that its application is limited to areas served by central water supplies.

Table 2 shows the variance in the costs of fluoridation in selected Montana communities. The per capita cost varies from $.06 to $1.35 per person per year. The American Dental Association estimates that water fluoridation costs about $.20 per capita annually. The state average, $.19, is 5 percent lower than the ADA's estimate.

Fluoride mouth rinse programs could provide significant reductions in dental decay in children for less than $.50 per year for each child. A large number of studies have demonstrated that a supervised use of a sodium fluoride mouth rinse (0.05 percent daily or 0.2 percent weekly) at school or at home may produce a 20 to 50 percent reduction in caries experience.4)

Topical fluoride is typically applied in the dentist's office. The cost and the number of times the treatment is given depends upon the age of the child, the type of fluoride used, and the amount of fluoridation in the water supply. However, in areas of unfluoridated water, this treatment is recommended twice yearly. This method requires a thorough cleaning of the teeth before the fluoride is applied. Although professionally applied fluorides will reduce tooth decay by 30 - 40 percent, it is an expensive method both from the standpoint of dental manpower and money compared to other approaches.

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Community[4]	Date Fluoridation Started	Water Supplies Treated	Approximate Total Gallonage of Water Treated With Fluoride	Approximate lbs. of Fluoride Used/1977	Approximate Dollar Expenditure for Fluoride 1977	Approximate Number People Receiving Fluoridated Water/1977	Dollar Cost of Fluoridation Per Capita 1977 [5]
Bozeman	1953	2	1,955,000,000		5,000.	30,000	.17
Crow Agency	1968	1	112,000,000	800	462.	1,300	.36
Ennis	1972	1	960,000		52.	575	.09
Hardin	1973	1	226,815,000	1,900	1,052.60	3,320	.32
Harlem	1973	1	53,916,000	1,200	1,354.	1,000	1.35
Laurel	1958	1	668,321,000[1] 477,500,000[2]	6,330[1] 4,523[2]	981.[1] 701.[2]	6,000	.16[1] .12[2]
Miles City	1955	1	498,000,000	1,812	563.	9,975	.06
Rocky Boy	1972	1	11,000,000	300	168.	300	.56
Roundup	1952	1	160,000,000		700.	2,500	.28
Scobey	1971	1	72,752,000	900[3]	630.[3]	1,555	.41
St. Ignatius	1966	1	15,846	200	25.	193	.13
						STATE AVERAGE---	.19

[1] includes approximately 190,821,000 gallons of fluoridated water---for industrial use

[2] excludes approximately 190,821,000 gallons of fluoridated water---for industrial use

[3] projected for a 12-month period based on data available for eight months

[4] not included are Poplar, Box Elder, and Elmo

[5] dollar cost may be subject to error due to reporting error and occasional fluoridation stoppages

TABLE 2 - Fluoridation Costs Per Capita Per Year Among Montana Communities Fluoridating Water - 1977

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1.2 Dental Health Education

Public education is necessary to make the public aware of the need for regular professional care and to learn those preventive measures which help deter dental problems. Normally, dental health education programs are directed primarily to school aged children, although there may be a need for dental education programs for expecting mothers alerting them to the danger of bottle-propping caries.

The content of school based dental education programs should vary with the grade levels of the children. For example, dental education programs for elementary school students in grades one through four typically include information on why the teeth and gums are important, causes of tooth decay (including what foods can be consumed which benefit the teeth), and a demonstration of proper brushing techniques. The proper method of flossing should not be taught until the students are in the fifth and sixth grades because of the physical coordination required to floss properly.

1.3 Dental Screening

A number of programs have been established to perform superficial examinations and to classify the mouth with respect to the need for dental care. If a person needs dental attention, he/she is referred to a dentist of his/her choice. Normally, no treatment is provided by the program, but follow-up is initiated to assure that each problem identified and referred was attended to. These programs are for the most part offered by some of the local health departments.

1.4 Dental Examinations

The preventive procedures which can be employed in the dentist's office to assure proper dental health maintenance are:

- an examination to identify dental problems in the early stages of development,
- topical fluoride applications to strengthen tooth enamel against decay,
- periodic professional prophylaxis
- periodic recall and maintenance, and
- home care instructions, such as proper brushing and flossing methods.

2.0 Current Status of Preventive Dental Activities in Montana

2.1 Fluoridation

A number of Montana communities, 77, have naturally fluoridated water supplies. In addition, 15 other communities, including

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Glasgow Air Force Base, have voluntarily chosen to fluoridate their water supplies. The location of all communities with fluoridated water is shown in Figure 1; Appendix 1 and 2 list these communities and their populations. In all, about 27 percent of Montana's population is drinking fluoridated water; 20 percent naturally fluoridated and seven percent artificially fluoridated. From an examination of Figure 1, one can draw two conclusions. First, most of the fluoridated water supplies are east of the Continental Divide. Otherwise, there appears to be no pattern to the naturally or artificially fluoridated water supplies.. Second, it is apparent that most of the larger communities in Montana do not have a fluoridation program.

The limited localized programs which have been conducted in Montana have demonstrated that, for investments of relatively small amounts of money, dramatic improvements can be realized in the general condition of children's teeth. For example, several studies have been conducted in Montana to determine the dental health improvements attributable to fluoridation programs.

The Bozeman Dental Society, along with the respective school authorities and the Dental Division of the State Board of Health, conducted a ten year study in Bozeman from 1953 to 1963. The study demonstrated a 41 percent reduction in decay experience in seven schools, grades one through nine, when compared to fluoride deficient children. Similarly, Roundup conducted a ten year study and found a 60 percent reduction in decay experience.5)

As an alternative to fluoridating the water supply, the Anaconda school system is participating in a demonstration program designed to evaluate the cost effectiveness of fluoride mouth rinses as a public health strategy. Over 90 percent of the eligible children are participating in the Fluoride Mouth Rinse Program, a total of 1,581 children. Results of the cost benefit study and caries reduction study will not be available until the National Caries Program announces them upon completion of the project in 1979.

Fluoride mouth rinse programs in the school offer the following advantages:

- The procedures have proven effective in reducing tooth decay. (Weekly mouth rinsing with a fluoride can lead to a 20-50 percent reduction in cavities)
- few materials and supplies are required; thus, these programs are inexpensive, (The Bureau of Dental Health estimates the cost of the Anaconda Fluoride Mouth Rinse Program at about $.50 per child per year.)
- non-dental personnel with minimal training can easily supervise the procedures, and
- the procedure can be administered easily with minimal interruption of a school's academic program. (Five minutes is required each week)

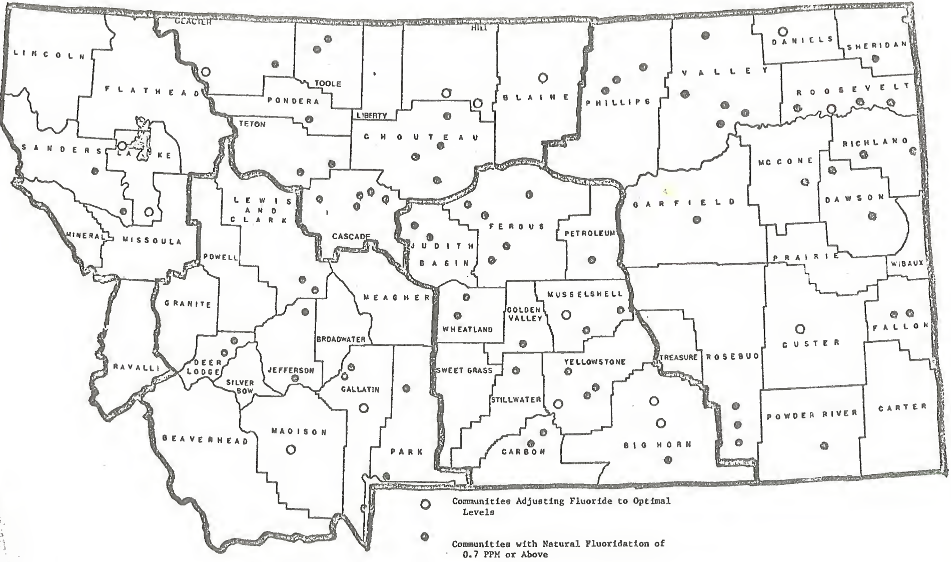

FIGURE 1 - Montana Communities With Naturally and Artificially Fluoridated Water Supplies

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For the past two decades, considerable research has been conducted nationally on the use of fluoride tablets in schools. Results show that tooth decay can be reduced by 20 to 35 percent by the daily use of a fluoride tablet in school. Fluoride tablets are prescribed for children up through fourteen years of age, the years during which the permanent teeth are developing. Presently, there are no school-based fluoride tablet programs in Montana.

2.2 Dental Education Programs in Montana

Dental education programs are available through a variety of settings, however, the Bureau of Dental Health, Montana State Department of Health and Environmental Sciences, is probably the leading sponsor of these programs. With a relatively small operating budget, the Bureau of Dental Health has initiated or sponsored several educational programs. Most of these have been aimed at school children. The following paragraphs describe these programs, their impact and their costs.

The School Preventive ("Brush-In") Program provides elementary school children with a new toothbrush, a demonstration on how to use it to control dental disease, and a dental health lecture explaining the cause of dental disease and ways to prevent it. The School Preventive Program enables children to learn how to control their own gum disease and dental caries. Table 3 shows the number of children in Montana schools by subarea and county who participated in the "brush-in" program during the 1976-1977 school year. During this period, approximately 50 percent (56,118 children) of all elementary school children enrolled in public schools in Montana were reached in this program. The operating budget for the School Preventive Program during 1976-1977 was $16,948, $.48 per student per year.

It appears that the subarea in which the most children are receiving the services of the "brush-in" program is the Eastern subarea, with 68 percent of the total elementary school population contacted. Conversely, the subarea in which the percentage of children receiving the services is lowest is the South Central subarea, with only 27 percent of the total elementary school population receiving the benefits. Certain counties warrant special attention since the contact rate is below 50 percent for the "brush-in" program among elementary school children. These counties are Lake, Missoula, Glacier, Hill, Fergus, Wheatland, Yellowstone, Phillips, Roosevelt, Rosebud, and Valley. The school systems in these counties may be the target for increased efforts to get their participation rate higher.

The Cascade City-County Health Department is also sponsoring a pilot program aimed at second and fifth grade school children in Great Falls. Students in the second grade are taught proper brushing techniques and good nutrition, while fifth graders are taught flossing techniques, in addition to brushing and nutrition education. The health department is also sponsoring a "brush-in" program for kindergarteners.

In addition to these programs, many informational materials are available free of charge for dental health education from the Dental Division of the Montana State Board of Health. Some life insurance companies, the National Dairy Council, and dental supply companies offer dental health information materials also. Presently, there are no education programs aimed at educating expectant mothers to the dangers of bottle-propping caries.

2.3 Dental Screening

The Flathead Children's Dental Health Project demonstrates a method of providing comprehensive dental services and preventive services to children in Flathead County and a way to measure the impact on the dental health of all the elementary school children in the County. The Flathead County Children's Dental Health Project screened and provided the preventive services to 4,770 elementary school children during the school year. Initial and recall maintenance dental treatments were completed by 347 children by the dentist of their choice during the same period. Screening results show that approximately 75 percent of the elementary school children in Flathead County need no dental care compared to 44 percent needing no dental care six years ago when the project began. Projections by the Dental Health Bureau indicate that within 20 years dental disease would be nearly non-existent in Montana if a similar program were funded for all children in the state. The current budget for the Flathead Children's Dental Health Project is approximately $40,000.

The Bureau of Dental Health estimates that it would take 10 hygienists to carry out a statewide screening program in Montana at a cost of $476,000 to $500,000.

A second program has been established in eight counties in Eastern Montana (Richland, McCone, Garfield, Prairie, Dawson, Wibaux, Fallon and Carter). The program was initiated by the Bureau of Dental Health and is now administered by the Glendive RHI. It provides screening and dental health education in the schools; no treatment is rendered. The Choteau RHI (Teton County) is planning to offer a similar program.

Several county health departments in Montana also provide dental screening and treatment services. Lewis and Clark County is served through the Children and Youth Program which offers a dental exam, prophylaxis, restorative care, dental hygiene, nutrition education, and follow-up care. Jefferson, Broadwater, and Powell counties are also served in this program. Cascade City-County Health Department has a program serving low income individuals who are not eligible for Medicaid benefits. The Toole County Health Department offers dental screening programs for elementary school children.

The Advisory Dentist to Long-Term Care Facilities Project was designed to provide screening to all patients in Montana long-term care facilities to determine their dental health and oral hygiene needs. The program insured that dental care services and oral hygiene assistance was available to all such patients. Seventy-seven of the seventy-nine long-term care facilities in Montana participated in the program with 78 percent of the long-term care facility patients participating. The advisory dentist designed and presented in-service training programs to fit the oral hygiene needs of patients in each facility. Twenty-six (26) percent, or 960 long-term care patients, were referred to their dentists for care. This program is no longer offered through the Dental Health Bureau, since facilities have since implemented advisory dentist programs.

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TABLE 3

ELEMENTARY SCHOOL CHILDREN RECEIVING "BRUSH-IN" PROGRAM - 1976-1977

County	Total Number Elementary Students Participating[1] 1976-1977 Grades K-8	Total Number Elementary School Children[2] 1976-1977 Grades K-8	Percent Receiving Benefits 1976-1977
NORTHWESTERN			
Flathead	4,862	7,163	68
Lake	34	2,809	1
Lincoln[4]	0	2,967	0
Mineral	456	617	74
Missoula	4,386	9,464	46
Ravalli	2,540	3,107	82
Sanders	902	1,307	69
Subtotal	13,180	27,434	48
NORTH CENTRAL			
Blaine	731	1,226	60
Cascade[4]	5,961	12,243	49
Chouteau	608	824	74
Glacier	570	2,070	28
Hill	708	2,634	27
Liberty	236	352	67
Pondera	716	1,258	57
Teton	646	913	71
Toole	556	794	70
Subtotal	10,732	22,314	48
SOUTHWESTERN			
Beaverhead	741	1,150	64
Broadwater	340	433	79
Deer Lodge	1,610	2,127	76
Gallatin	2,914	4,691	62
Granite	273	387	71
Jefferson	771	1,187	65
Lewis and Clark	3,347	6,255	54
Madison	414	684	61
Meagher	214	301	71
Park	1,173	1,685	70
Powell	947	1,099	86
Silver Bow[4]	2,880	6,116	47
Subtotal	15,624	26,115	60

TABLE 3 (cont.)

ELEMENTARY SCHOOL CHILDREN RECEIVING "BRUSH-IN" PROGRAM - 1976-1977

County	Total Number Elementary Students Participating[1] 1976-1977 Grades K-8	Total Number Elementary School Children[2] 1976-1977 Grades K-8	Percent Receiving Benefits 1976-1977
SOUTH CENTRAL			
Big Horn	1,796	1,796	100
Carbon	759	1,089	70
Fergus	393	1,736	23
Golden Valley	115	142	81
Judith Basin	256	354	72
Musselshell	450	624	72
Petroleum	85	93	91
Stillwater[4]	350	719	49
Sweet Grass	216	408	53
Wheatland	55	339	16
Yellowstone	1,496	14,841	10
Subtotal	5,971	22,141	27
EASTERN			
Carter[3]		252	
Custer	1,500	1,615	93
Daniels	324	424	76
Dawson[3]		1,669	
Fallon[3]		679	
Garfield[3]		263	
McCone[3]		428	
Phillips	349	791	44
Powder River	200	373	54
Prairie[3]		228	
Richland[3]		1,578	
Roosevelt	824	1,879	44
Rosebud	689	1,497	46
Sheridan	450	776	58
Treasure	136	163	83
Valley	144	2,065	7
Wibaux[3]		246	
Subtotal	10,186	14,926	68
State Total	55,693	112,930	49

[1] Number of students by county who participated in a "brush-in" program during the 1976-1977 school year. Total includes: 1) those programs actually delivered by Bureau of Dental Health; 2) those programs for which the Bureau of Dental Health provided training, supervision, and/or supplies; and, 3) those programs initiated by the Bureau of Dental Health.

[2] Summary of Public School Enrollment by Grade and County, 1976-1977, Office of Superintendent of Public Instruction.

[3] Rural Health Initiative Service Area (Glendive). "Brush-in" program initiated by Bureau of Dental Health, serving 5,570 children in eight counties.

[4] These figures do not reflect several programs currently [illegible] existence in Cascade Coun Lincoln, Stillwater, Silver Bow Counties.

3.0 Potential Impact of Alternative Dental Prevention Strategies

3.1 Description

The purpose of this section is to estimate the theoretical costs, potential savings, and possible impacts of selected dental prevention strategies which could be undertaken in Montana. The five strategies are:

- A mandatory program requiring communities of 1,000 people or more to fluoridate their water supplies,
- a voluntary water fluoridation program aimed at the six largest cities in Montana which do not fluoridate their water supplies,
- a fluoride mouth rinse program aimed at all elementary school children in Montana not receiving the benefit of fluoridated water,
- a fluoride tablet program aimed at all elementary school children in Montana not receiving the benefits of fluoridated water, and,
- an expansion of the Dental Health Bureau's "Brush-In" program aimed at all elementary school children in Montana.

The mandatory fluoridation program is based upon a bill considered by the 1971 Montana legislature which did not pass. If this bill would have been enacted, it would have required all incorporated communities of 1,000 or more persons to fluoridate their water supplies.

The voluntary fluoridation program would be arbitrarily aimed at the six largest communities which do not currently have fluoridated water supplies. These communities are Missoula, Butte, Billings, Helena, Kalispell, and Anaconda. Approximately 67 percent of the Helena population is not served by fluoridated water; all five of the other communities are totally unserved. The HSA's role in this type of program, if such a policy was adopted, would be to support any initiative aimed at fluoridating the community's water supply.

The third strategy involves expanding the Anaconda fluoride mouth rinse program to all the elementary school systems in Montana. Schools offer a logical place of administering self-applied fluorides to children, since they are the group who can realize the greatest benefit from fluoride treatments. The mouth rinse procedure requires only five minutes each week and can be administered by non-dental personnel. The HSA's role in such a program, if this program were to be adopted, could range from general support to possibly some funding when and if area health development funds become available.

3.2 Methodology

The analysis of each fluoride program and its related costs, the potential savings to be realized, and its estimated impact on dental caries is crude and is only intended to provide a basis for comparing each alternative program. Before any policy decisions are made or any strategies implemented, a more sophisticated analysis should be undertaken by the community considering the program.

The assumptions used in the analyses are intentionally conservative so that the potential impact and savings may be understated.

The following equations were used in this analysis:

Program Costs

Program Costs = (population) affected x cost/person/year x 6 years.

The population affected includes only those additional persons who would be served by the program. For the mandatory fluoridation program, those persons (27 percent) already on fluoridated water are subtracted out.

For the school fluoridation programs, it is assumed that the same proportion of children are currently on fluoridated water and therefore are not included in this program.

The unit costs of each program is reported in the previous section. They are:

- water fluoridation - $.19 per person, per year (based on the data shown in Table 2)
- Fluoride Mouth Rinse Program - $.50 per child per year (based upon the experience of the Anaconda Program)
- fluoride tablets - $2.70 per child per school year, (180 days) (based upon the retail cost of $1.50 per 100 tablets and assuming they are taken daily)
- "Brush-In" program - $.48 per child per year (based upon the State Dental Bureau's current experience)

A six year time frame was adopted because the full impact of any prevention program is not realized immediately, with the exception of a fluoride mouth rinse program. Horowitz, in a nationally accepted article, states that the cost for incremental dental care in Newburgh, New York was 50% lower six years after fluoridation was first initiated. The Bozeman and Roundup fluoridation studies, reported earlier, arbitrarily used a ten year followup to evaluate fluoridation benefits.

Expected Savings

Expected Savings = Population Affected x Average per capita annual cost for dental care x estimated program effectiveness.

The population affected is the same as that used in estimating costs. The average per capita cost for dental care is assumed to be $28.42, based on 1973 data.[6]

The estimated program effectiveness is reported in the previous section. They are:

- water fluoridation - 50% reduction (based upon the Bozeman and Roundup Experience, and nationally accepted data)
- Fluoride Mouth Rinse Program - 20% reduction (weekly mouth rinsing with a fluoride solution can reduce the number of cavities from 20-50 percent)[7]
- Fluoride tablets - 20% reduction (school based programs have demonstrated a 20 to 35 percent reduction in decay experience when children are given a fluoride tablet each day).[8]

It is assumed that no savings will be realized until the sixth year of the program. This is very conservative since some dentists suggest that there are immediate benefits from fluoridation.

Net Savings

Net savings = dental care savings at the end of six years - the six year costs of fluoride

Percentage of Total Population Affected

$$\%\ \text{Population affected} = \frac{\text{population affected by fluoride program} + \text{population presently utilizing fluoridated water}}{\text{Total population}}$$

The persons currently on fluoridated water supplies (27%) are included in the estimates although they are not included in the cost and savings estimates.

Net Reduction in Dental Caries in Montana

For water fluoridation programs:

$$\%\ \text{Reduction in Dental Caries} = \frac{y\ (\text{pop. not on fluoride}) + .5y\ (\text{pop. on fluoride})}{.865y}$$

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The denominator is estimated by assuming that 27 percent of the population currently on fluoride has 50 percent less dental caries. The term "y" denotes the average number of dental caries in a non-fluoridated population. Since it is in both the numerator and the denominator, it is factored out in the calculation.

3.3 Results

Table 4 presents the resultant costs, potential savings and estimated decrease in dental caries for each of the four fluoridation programs if they were implemented for six years and assuming no benefits would be realized for the first five years. In all cases except the fluoride tablet program, the savings are considerable.

The effectiveness of the school "brush-in" program cannot be evaluated. However, based upon the Dental Health Bureau's program in the past, the total budget to reach all elementary school children in Montana would be $53,653 per year.

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PROGRAM	TARGET POPULATION	NATIONAL COST:BENEFIT RATIO 1)	SIX YEAR PROGRAM COST	EXPECTED SAVINGS ON DENTAL CARE 2)	NET SAVINGS ON DENTAL CARE 3)	POTENTIAL IMPACT	
						PERCENT POPULATION REACHED 4)	POTENTIAL REDUCTION IN DENTAL CARIES IN MONTANA 5)
Mandatory Water Fluoridation	All Communities of 1,000 People or More	1:65	$287,196	$3,579,869	$3,292,672	63%	21%
Voluntary Water Fluoridation In Six Major Montana Cities	Missoula, Butte, Billings, Helena, Kalispell, Anaconda	1:65	178,445	2,224,306	2,045,861	49%	13%
Fluoride Mouth Rinse	Elementary School Children Not Receiving Fluoridated Water	1:25	244,935	2,784,420 6)	2,539,485	39%	2.7%
Fluoride Tablet	Elementary School Children Not Receiving Fluoridated Water	1:5	1,322,649	464,070	None	39%	2.7%

TABLE 4 - Expected Costs, Savings, and Impact of Four Fluoridation Strategies in Montana Over a Six Year Period.

1) International Workshop On Fluorides and Dental Caries Reductions, School of Dentistry, University of Maryland, 1974, p. 109.
2) The savings on dental care expenditures attributable to the fluoride program, and assuming no savings are realized until the sixth year after the fluoride strategy is implemented.
3) The savings on dental care expenditures resulting from the fluoride program after the cost of the fluoride is subtracted out.
4) Represents the total percentage of Montana's population that would be receiving fluoride benefits if a particular fluoride program was implemented. Inclusive of the 27 percent presently on fluoridated water.
5) The percentage reduction in decay experience which can be expected in Montana, inclusive of people receiving the fluoride and those not receiving any fluoride. This percentage reflects how the decay experience can be reduced within the entire population of Montana if a fluoridation program is implemented for a target group.
6) The benefits are immediate with fluoride mouth rinses.

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[1] Papers on the National Health Guidelines, Draft Initial Statement, National Health Policy Planning Guidelines, U.S. Department of Health, Education, and Welfare, Public Health Service, Health Resources Administration, October, 1976, p. 39.

[2] Fomon, Samuel J. and Wei, Stephen, Prevention of Dental Caries.

[3] Pediatrics, Vol. 59, No. 5, May 1977, pp. 777-778, for reprints of Article: Department of Pediatric Dentistry, School of Dentistry, University of Maryland, Baltimore, Maryland 21201.

[4] Op cit., Torrell and Ericsson, 1974, as cited in Prevention of Dental Caries, p. 93.

[5] Treasure State Health, Division of Dental Health, State Board of Health, October, 1962, April 1964, as cited in Montana Dental Public Health Manual, August 31, 1966.

[6] Distribution of Health Care Expenditures, United States and Washington, 1973, The Guidebook To Personal Health Care In Washington, Health Policy Analysis Program, Dept. of Health Services, University of Washington, August, 1975, p. 30.

[7] Preventing Tooth Decay=A Guide To Implementing Self-Applied Fluoride Programs In Schools, U.S. Department of HEW, Public Health Service, National Institute of Health.

[8] Ibid, Preventing Tooth Decay.

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APPENDIX 1

COMMUNITIES ADJUSTING THEIR FLUORIDE TO OPTIMAL LEVELS BY SUBAREA

Community	Population*	Date Fluoridation Started
EASTERN		
Miles City	9,023	1955
Poplar	1,389	1970
Scobey	1,485	1971
Glasgow A.F.B.	3,000	1961
Subtotal	14,897	
SOUTH CENTRAL		
Crow Agency	1,000	1968
Hardin	2,733	1973
Laurel	4,454	1958
Roundup	2,116	1952
Subtotal	10,303	
SOUTHWESTERN		
Bozeman	18,670	1953
Ennis	501	1972
Subtotal	19,171	
NORTH CENTRAL		
Box Elder	170	1972
Browning (not fluoridating at present)	1,700	1968
Harlem	1,094	1973
Rocky Boy	175	1972
Subtotal	1,439	
NORTHWESTERN		
Elmo	210	1967
St. Ignatius	925	1966
Subtotal	1,135	
STATE TOTAL	46,945	

Dental Health Bureau, Montana State Department of Health and Environmental Sciences, 1977.

*1970 Census or Estimates

APPENDIX 2

COMMUNITIES WITH NATURAL FLUORIDATION OF 0.7 PPM OR ABOVE BY SUBAREA

Community	Population*
EASTERN	
Ashland	531
Baker	2,584
Birney	13
Broadus	799
Brockton	401
Circle	964
Culbertson	821
Dodson	196
Fairview	956
Fort Peck	656
Froid	330
Glasgow	4,700
Glendive, Highland Park	1,100
Hinsdale	390
Jordan	529
Lambert	250
Lame Deer	650
Malta	2,195
Medicine Lake	93
Nashua	13
Opheim	306
Plentywood	381
Plevna	189
Richey	[illegible]
Saco	356
Westby	287
Wolf Point	3,095
Sub Total	25,968
SOUTH CENTRAL	
Ballantine	350
Broadview	120
Coffee Creek	74
Denton	398
Fromberg	364
Geyser	142
Harlowton	1,375
Joliet	412
Judith Gap	160
Lewistown	6,437
Lodge Grass	806
Melstone	227

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APPENDIX 2 (Continued)

Moore	219
Musselshell	150
Rapelje	72
Ryegate	261
Stanford	505
Winifred	220
Winnett	271
Worden	425
Sub Total	12,988

SOUTHWESTERN

Canyon Ferry	435
Clancy	230
Clyde Park	244
Galen	50
Gardiner	600
Helena (Missouri Supply)	7,573
Three Forks	1,188
Trident	42
Warm Springs	500
West Yellowstone	756
Whitehall	1,035
Sub Total	12,653

NORTH CENTRAL

Belt	656
Big Sandy	827
Black Eagle	2,200
Brady	250
Cascade	714
Fairfield	638
Fort Benton	1,863
Fort Shaw	150
Geraldine	370
Great Falls	60,091
Kevin	250
Loma	110
Malmstrom AFB	15,000
Power	91
Sand Coulee	300
Sunburst	604
Sub Total	84,114

APPENDIX 2 (Continued)

NORTHWESTERN

Dixon	150
Hot Springs	675
Sub Total	825
STATE TOTAL	136,548

Dental Health Bureau, Montana State Department of Health and Environmental Sciences, 1977.

*1970 Census or Estimates

CHAPTER 7

HEALTH STATUS CHARACTERISTICS

7.1 Overview

The ultimate goal of the Health Systems Agency is to improve the health of the residents being served. The Health Systems Plan is supposed to take a population based approach to identify health problems and advocate changes in the delivery system which will alleviate and reduce these problems. One method of doing this is by selecting an indicator of health status, identifying the potential target areas and surveying the different types of interventions which might reduce the problem.

Theoretically, by implementing different programs and strategies, the magnitude of the problem (as suggested by the health status indicator) should be reduced. Practically, very few programs actually show a significant and direct reduction in disease. In fact, many studies have implied that the more available the health services, the poorer the population's health status. The exceptions are such preventive measures as immunization and fluoridation programs where their impacts have been documented many times.

Many reasons have been suggested for the inability to document payoffs for a given intervention and disease. The primary reason appears to be that it is beyond the current state of the art. First, even authorities are hard pressed to find an universally accepted definition of health. Second, the factors determining one's health status are so subtle and interrelated that altering any one of them does not show up as a change in the health statistic being examined. Finally, only the crudest measures of health status (mortality rates) are currently available for analysis. Even these have limited use since age-adjusted statistics are not currently available.

Nevertheless, examining and monitoring selected health status indicators does appear to have some merit. In particular, it appears that such an endeavor could help to identify promising preventive and health education programs. This is especially true when tempered with community values as to what is important.

In this chapter three health problems are addressed, some possible interventions are discussed and programs to be emphasized and encouraged by the Health Systems Agency are identified. The three health problems are:

- Heart Disease
- Cancer
- Alcoholism

The goals and recommendations found in the following components are intended to be statements of the HSA's future aspirations of types of programs to be fostered. If Area Health Services Development Funds become available, these goals and recommended actions can serve as a basis for the allocation of these monies. In some cases, they can also be used to guide the review of federal funds.

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INSTRUCTIONS: Check the three (3) health problems below which you feel are the most serious in Montana and need to be addressed in the next Health Systems Plan. Please sign the questionnaire and state your affiliation, and return to the HSA as soon as possible.

	MORTALITY RATE 1975*		INCIDENCE RATE 1976*	
	Montana	U. S.	Montana	U. S.
_____Infant Mortality/1,000 Live Births	15.5	16.1		
_____Heart Disease	291.2	336.2		
_____Cancer	147.7	171.1		
_____Stroke	88.2	91.1		
_____Motor Vehicle Accidents	37.7	21.5		
_____Influenza and Pneumonia	27.0	26.1		
_____Alcoholism/Cirrohis of Liver	10.56	19.3		
_____Drug Addiction	Unavailable			
_____Mental Illness/Suicide	15.0	12.7		
_____Childhood Diseases				
Mumps			3.58	17.93
Measles			75.0	19.16
Diphtheria			0.0	0.06
_____Venereal Diseases				
Syphilis, Primary & Secondary			1.85	11.14
Gonorrhea			268.39	470.47
_____Dental Caries			Unavailable	95% of all youth by mid-teen years have an average of nine decayed, missing or filled teeth
_____Other (Specify)				
_____Other (Specify)				
_____Other (Specify)				

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NAME_______________________________

Check One: ☐ Governing Board Member
☐ Subarea Advisory Council Member
☐ Other (Specify) _______________

* Per 100,000 estimated midyear population

TABLE 1

HEALTH STATUS	GOVERNING BOARD	SUBAREA	HOSPITAL ADMINISTRATORS	NURSING HOME ADMINISTRATORS	HEALTH DEPT.	STATE	ORGANIZATIONS	UNKNOWN
Infant Mortality	2	3	1	3	1	1	0	2
Heart Disease	16	22	20	20	7	2	3	9
Cancer	13	19	12	18	7	1	1	2
Stroke	7	9	8	17	2	1	1	3
Motor Vehicle Accidents	10	16	11	5	9	4	1	4
Influenze & Pneumonia	1	1	2	1	1	2	0	1
Alcoholism/Cirrohis of Liver	15	22	16	5	8	7	4	4
Drug Addiction	0	8	8	3	1	1	1	1
Mental Illness/Suicide	10	11	7	8	8	5	0	2
Childhood Diseases	4	7	3	2	1	5	0	0
Venereal Diseases	2	8	4	1	2	1	0	3
Dental Caries	3	4	5	0	6	4	0	0
TOTAL RESPONDING	26	44	32	30	20	12	5	12
PERCENT RESPONDING	61.9%	44.9%	47.8%	46.9%	--	--	55.6%	--

TABLE 2 Responses to HSA Health Status
Questionnaire Mailout
(April 26, 1978)

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7.1

HEART DISEASE

GOAL: To reduce the crude mortality rate from heart disease in Montana by 10 percent (to 260.3) deaths per 100,000 persons by 1985. Primary emphasis is to be placed upon health education, screening, and early intervention activities.

OBJECTIVES:

General Suggestions

To develop systems of primary care through prevention, education and screening programs.

Health Education

To encourage and support intensive programs stressing medical care as only a segment of total health care. This to be accomplished in part by increasing the use of nurses to work with those at risk.

Exercise

Support the development of programs promoting low cost exercise facilities and information regarding appropriate physical activity.

Nutrition

To promote more intense nutritional programs through public education and encourage public schools to eliminate "junk foods" from their facilities.

Smoking

To advocate the increased emphasis on smoking cessation clinics and anti-smoking programs.

General Screening and Blood Pressure Clinics

Support general screening concepts to identify high risk individuals through annual physical examinations, media education and convenient visible locations for blood pressure testing. One of the primary groups for these programs should be senior citizens.

CPR Training

Support CPR training of the lay public in school systems, by Red Cross, the Heart Association, and EMS personnel.

1.0 Health Status Indicators

There were 2,178 deaths in Montana in 1978 caused by diseases of the heart. The prominent cause was ischemic heart disease, accounting for 80.6% of these deaths; the acute form of this cause, myocardial infarction, was responsible for over half of these deaths (54.8%). Both crude and age-adjusted rates of deathes from heart disease appear to be going down, (See Figure 1) and the same pattern can be observed nationwide. During the period between 1972 and 1976, the crude mortality rate in Montana from Heart Disease decreased from 319 per 100,000 population to 289.2 - a drop of 9.3 percent. In the age group 35-44, heart disease has dropped to the third leading cause of death, and is now almost half what it was in 1972.

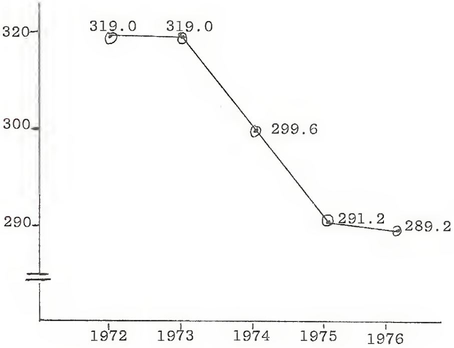

Figure 1 - Trend in Heart Disease Mortality in Montana (1972-1976)

SOURCE: Montana Vital Statistics, 1972-1976

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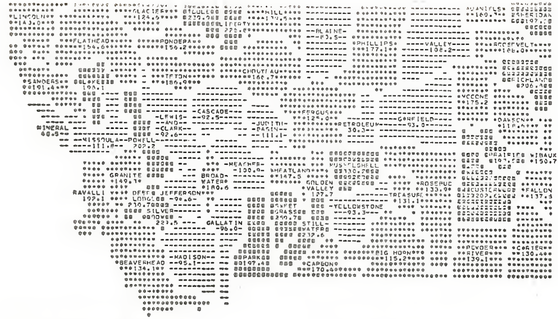
Subarea and County	Crude Death Rate for Ischemic Heart Disease (1972-1976)	Crude Death Rate for Other Forms of Heart Disease (1972-1976)	Average Number of Deaths From All Forms of Heart Disease (1972-1976)	Percent Population Over 65 (1975)
Northwestern				
Lincoln	140.0	111.2	43.8	7.0
Flathead	154.6	170.1	145.6	10.4
Sanders	191.4	168.8	27	13.3
Lake	198.1	193.4	66.4	13.7
Mineral	40.5	138.7	7.6	7.6
Ravalli	192.1	223.9	411.2	15.4
Missoula	111.8	114.3	148.2	7.7
North Central				
Glacier	124.6	126.3	28.8	8.3
Toole	239.9	184.5	24	11.0
Pondera	156.2	125.0	20.6	10.6
Teton	186.9	211.8	22.8	12.3
Cascade	92.5	137.6	192.2	8.7
Chouteau	166.7	230.8	26	12.1
Hill	139.5	150.7	52.6	8.8
Blaine	80.5	336.2	30.4	11.1
Liberty	225.8	129.0	11.2	8.7
Southwestern				
Beaverhead	134.1	151.2	23	10.8
Madison	95.1	130.3	10	15.1
Gallatin	96.0	108.3	77	8.1
Lewis and Clark	92.6	187.4	105.6	9.8
Broadwater	180.6	194.4	9.8	12.1
Jefferson	94.6	88.8	11.4	8.9
Meagher	100.9	266.1	10.6	11.8
Silver Bow	229.5	186.2	188.4	18.9
Deer Lodge	230.7	141.3	57.6	12.8
Powell	202.2	172.1	29	9.3
Granite	149.3	201.5	7.6	12.1
Park	197.4	250.0	54.4	14.2
South Central				
Fergus	125.0	276.2	57.8	15.0
Petroleum	30.3	121.2	1.2	7.0
Judith Basin	111.1	222.2	46	15.4
Wheatland	147.5	163.9	8.2	15.4
Golden Valley	127.7	234.0	2.8	15.9
Musselshell	330.2	111.6	20.8	15.4
Sweet Grass	259.7	97.4	11.2	17.7
Stillwater	232.6	127.9	18.6	14.3
Carbon	170.4	243.1	33.8	17.4
Big Horn	115.2	111.5	23	7.0
Yellowstone	93.3	134.4	211.3	8.2
Eastern				
Valley	108.2	146.3	34.2	7.9
Daniels	160.3	217.9	13	14.8
Sheridan	197.0	200.7	23.4	13.2
Roosevelt	188.0	172.5	39.80	9.8
McCone	175.2	197.1	13.6	10.8
Garfield	93.0	232.6	6	9.9
Richland	206.8	128.5	35.2	11.2
Dawson	118.6	149.6	28	9.2
Wibaux	150.7	232.9	5.2	12.5
Rosebud	133.9	76.2	16	9.4
Treasure	131.1	114.8	3.2	11.3
Powder River	139.1	156.5	6.6	8.2
Custer	202.6	236.6	54	12.5
Prairie	193.5	279.6	9.4	15.4
Phillips	177.1	262.0	22.4	13.3
Fallon	137.8	107.1	9.4	10.1
Carter	130.4	282.6	8	14.3

TABLE 1 - Selected Indicators
of Heart Disease in Montana

SOURCE: Unpublished data from the Bureau of Records & Statistics and estimates from the Montana Department of Community Affairs

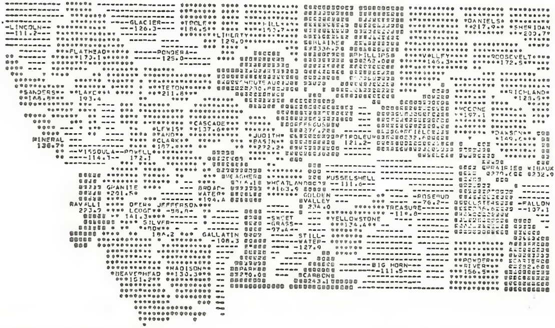


DEATHS PER 100,000 ESTIMATED POPULATION
SOURCE: BUREAU OF RECORDS AND STATISTICS
AND BUREAU OF THE CENSUS.

---- 30.3 - 111.8 LOW QUARTILE
◆◆◆◆ 115.2 - 147.8 MEDIUM LOW QUARTILE
◆◆◆◆ 149.3 - 192.1 MEDIUM HIGH QUARTILE
■■■■ 193.5 - 330.2 HIGH QUARTILE

FIGURE 2 - Number of Deaths Per
100,000 population in
Montana from Ischemic Heart
Disease (1973 - 1977)

SOURCE: Unpublished Data from the Bureau of Records & Statistics



DEATHS PER 100,000 ESTIMATED POPULATION.
SOURCE: BUREAU OF RECORDS AND STATISTICS
AND BUREAU OF THE CENSUS.

---- 76.2 - 127.9 LOW QUARTILE
◆◆◆◆ 128.5 - 168.8 MEDIUM LOW QUARTILE
◆◆◆◆ 170.1 - 222.2 MEDIUM HIGH QUARTILE
■■■■ 223.9 - 338.2 HIGH QUARTILE

FIGURE 3 - Number of Deaths Per
100,000 Population in
Montana from Other Kinds of
Heart Disease (1973 - 1977)

SOURCE: Unpublished Data from the Bureau of Records & Statistics

The five-year (1976-1976) crude mortality rates for ischemic heart disease (heart attacks) and other forms of heart disease by county and subarea are shown in Table 1. Quartile maps corresponding to the mortality rates for these two types of heart disease are displayed in Figures 2 and 3. It is suggested that those counties in the highest quartile (i.e. shaded the darkest) may represent potential target areas for programs aimed at reducing heart disease mortality.

2.0 Primary Prevention Strategies

2.1 Rheumatic Heart Disease

One easily prevented form of heart disease is rheumatic heart disease. If strep-throat infections are left untreated, they can lead to rheumatic fever and, consequently, damage the heart (rheumatic heart disease). Although the state requires all cases of rheumatic fever to be reported, it appears that many go unreported. There were, for example, no cases of rheumatic fever reported in 1976, but 52 deaths were attributed to rheumatic heart disease.

By using penicillin to treat strep-throat and rheumatic fever, over 90 percent of the patients will not develop rheumatic heart disease; making this strategy one of the most cost-effective prevention strategies for heart disease there is. Both the state health department and the Montana Heart Association have penicillin prophylaxis programs for rheumatic fever patients. The state is currently examining its program to see if it should be continued.

2.2 Heart Attack

Six risk factors in middle-aged men without a history of heart attack seems to enhance the chance of dying from coronary heart disease. These are:

- hypercholesterolemia (high serum cholesterol)
- smoking
- hypertension
- lack of vigorous physical activity
- familial or genetic factors
- psychological factors (e.g. Type A personality)

There is considerable disagreement about the relative contribution of these six risk factors. The evidence for elevated cholesterol, smoking and hypertension is, however, almost universally accepted.

Although these characteristics increase the risk of coronary heart disease, they are not causative. That is, some people with these conditions and habits do not have heart disease and others without them get heart disease. However, the chances are higher for developing heart disease if one possesses one or more of these risk factors.

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One epidemiological study estimated that one-third of 25-year-old males and one-half of 45-year-old males who have high cholesterol levels, smoke and have high blood pressure will develop coronary heart disease in 20 years. On the other hand, another study concluded that a community-wide intervention program aimed at modifying these three risk factors could expect to reduce the overall incidence of coronary artery disease by no more than 10 percent; with 50 percent participation. There is no evidence that programs aimed at the other risk factors in the general population would have any impact on the incidence or prevalence of coronary artery disease.

At the same time, the Inter-Society Commission for Heart Disease Resources has made some estimates of the maximum potential reduction in heart disease mortality to be realized if some given goal levels were to be achieved. These estimates are shown in Table 2.

Change	Target Population	Maximum % Reduction in CHD Mortality
10% reduction in serum cholesterol	U.S. population	24
Cessation of smoking in 30%	U.S. middle-aged white males who smoke	10
Bringing blood pressure under control in 50%	U.S. middle-aged white, hypertensive males	7

TABLE 2 - Potential impact on heart disease mortality of three primary prevention intervention strategies.

SOURCE: Inter-Society Commission for Heart Disease Resources

Each of these strategies are particularly ameniable to health education programs. However, in the past, such programs have shown to have poor compliance ratings. Each of these efforts involve behavior changes which must be followed over a lifetime. Thus, there is a serious question that the changes listed in Table 2 are attainable through educational efforts.

2.2.1 Nutritional Programs

In Montana, there apparently has been no program directed specifically at the general public which has been aimed at high fat diets. The Preventive Health Bureau, in the Department of Health and Environmental Sciences, however, has held nutritional conferences in which this subject has been addressed. These conferences are held on a request only basis.

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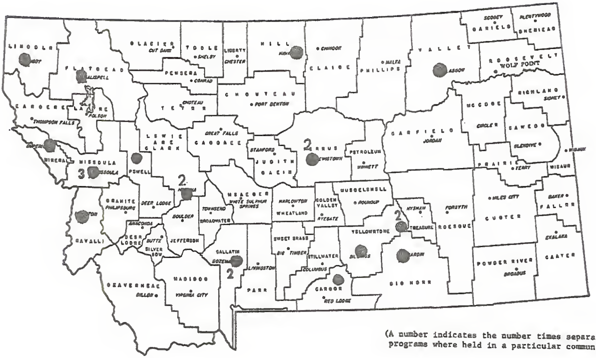

(A number indicates the number times separate programs where held in a particular community)

FIGURE 4 - Location of smoking cessation clinics sponsored by the Seventh Day Adventist Church (Jan.-May 1978)

SOURCE: Personal communication with representatives of the Seventh Day Adventist Church

3.0 Possible Screening Strategies

One is a health education program aimed at the public to teach them to recognize the early warning signs of a heart attack. These symptoms are:

-Uncomfortable pressure, fullness, squeezing, or pain in the center of the chest for more than two minutes.

-Pain spreading to the shoulders, neck, or arms.

-Severe pain, dizziness, fainting, nausea, or shortness of breath also occurring.

It has been estimated that seven percent of the deaths from heart attacks could be prevented if victims knew the early warning signs and received care within two hours.

It has also been suggested in the literature that screening programs to identify children and adults with high cholesterol levels be started. It is felt, however, that this strategy is not cost effective and cannot be adopted as a general public health measure. The same appears to be true for mass screening with electrocardiograms (ECGs).

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2.2.2 Anti-Smoking Programs

The state of Montana levies a $.12/pack tax on cigarettes. Estimates of the amount of revenue generated and the number of cartons for the last four years are presented in Table 3. If one assumes that an average adult smoker smokes two packs a day, there would be approximately 265,252 smokers in Montana, or about 53 percent of the resident population over 18 years of age.

Fiscal Year	Estimated Number of Cartons Sold	Total Tax Revenue Generated
1975	9,090,402	$10,581,247
1976	9,336,473	$10,867,684
1977	9,565,980	$11,134,814
1978	9,681,706	$11,269,506

Table 3 - Estimated Number of cigarette cartons sold in Montana and Tax Revenue Generated (1975-1978)

SOURCE: Unpublished Data from the Miscellaneous Tax Division, Dept. of Revenue, State of Montana

Anti-smoking education efforts are currently being undertaken in Montana by the Montana Division, American Cancer Society; the Montana Lung Association, and the Montana Heart Association.

Seventh Day Adventist Churches appear to be the most active group in sponsoring Smoking-Cessation Clinics.

Figure 4 shows the cities in which stop smoking programs were held between January and May, 1978. In addition, the local television station in Missoula put on an anti-smoking program on five consecutive Fridays; in cooperation with the local Seventh Day Adventist pastor.

The number of participants vary by the size of the community in which the program is held. It has been estimated that the following communities have these average participating rates:

Missoula	-200-500 participants
Helena	- 35- 50 participants
Bridger, Custer, Ovando	- 20- 30 participants

Using this estimate, it appears that between 1,200 and 2,700 people participated in these anti-smoking programs between January and May, 1978.

The Montana Lung Association is also considering sponsoring a pilot smoking cessation clinic in Helena this fall.

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4.0 Early Intervention After the Attack

Emergency Medical Services (EMS) are found in many communities and respond to many types of emergencies including heart attacks. EMS systems are clearly beneficial, cost effective, and save lives.

The Inter-Society Commission for Heart Disease Resources has suggested that improvement of the present ambulance system in the United States to meet the standards of an all-purpose ambulance is likely to be the most practical approach in the future for most communities.

The following principles for emergency transportation operation were recommended by the Inter-Society Commission:

(1) The primary effort in emergency care should be early stabilization of the patient.

(2) The transport system should be operated with full knowledge and cooperation of community physicians.

(3) The community should be fully aware of the purpose and function of the system, and this information should be included in public and professional education programs in heart disease.

(4) The method by which patients and physicians activate the emergency transport system should be simple, effective, and tailored to meet local circumstances.

(5) The emergency transport system should encompass civic emergency programs operated by the police, fire department, or rescue squads in the community.

(6) Transportation should be coordinated with the facility within the stratified system which will receive the patient.

(7) A program for ambulance personnel to develop and maintain a high level of skill in the management of cardiac emergencies should be an integral part of the system.

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In addition, it has been suggested that two special programs might be developed in certain communities to reduce the response time after a heart attack has occurred.

First, mobile coronary care units designed to respond only to suspected cardiac emergencies might be established. To be effective, this strategy appears to be limited to areas with large population concentrations. Studies have shown that special ambulance systems and mobile coronary care units have succeeded in resuscitating between 12 and 65 percent of the heart attack victims who are found in ventricular fibrillation but one-half of these will be dead within two years.

The second potential program to reduce the response time to treat heart attack victims involves training the general public in cardio-pulmonary resuscitation (CPR).

Preliminary data from King County, Washington (Seattle) indicates that the benefits of bystander-initiated CPR are shown to have similar ratios of resuscitation and survival as those being resuscitated by paramedics in an advanced life support service. It is emphasized, however, that for CPR training to be effective, the necessary backup support (Emergency Medical Systems) systems and hospital (Coronary Care Units) must be in place.

The extent of CPR training in Montana is depicted in Figure 5. It shows the estimated percentage of the population trained in CPR, based on a cursory review of Montana Heart Association records. Two communities, Billings and Missoula, have had full time staff to give this training. The other communities have relied upon volunteer instructors. The state EMS Bureau is encouraging CPR training by giving continuing education and recertification credits to EMT instructors in CPR.

5.0 Inpatient Services

Two concepts of inpatient care have been developed in recent years to improve the outcome of coronary heart disease patients. These are the development of coronary care units in most hospitals and the use of open-heart surgery. Both of these are addressed in service components of the the plan.

Remote monitoring systems for CCU units have been developed in other states, but none has been established in Montana, although electrocardiograms are transmitted and read in selected areas by remote consultants.

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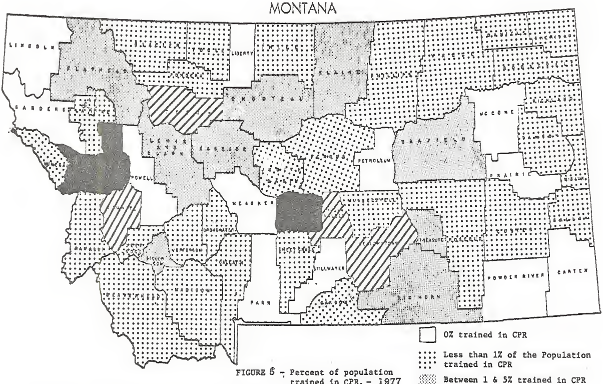
The Health Systems Plan calls for the development of three cardiac catheterization laboratories and open-heart surgery teams in Montana. Four facilities have developed catheterization laboratories (Missoula, Billings (2) and Great Falls) and two currently have open-heart surgery capability (Missoula and Billings).

6.0 Rehabilitation and Follow-up

Many efforts have been made primarily by the medical profession to alter the behavior of those who have already had a heart attack. These efforts primarily concentrate on getting heart attack victims to reduce serum cholesterol levels, stop smoking, control hypertension and increase their level of physical activities. It has been suggested that these late interventions have contributed significantly to reduction in heart disease mortality rates.

It has been estimated that if all smokers who suffered an attack stopped smoking, then a 15 percent reduction in coronary deaths might be possible. If hypertension were controlled in all those already having had a heart attack, a maximum reduction of six percent in the mortality rate might be achieved. The potential impact of altering the diets and increasing the physical activity of heart attack survivors is less clear.



☐ 0% trained in CPR

⁙ Less than 1% of the Population trained in CPR

▒ Between 1 & 5% trained in CPR

▨ Between 5 & 10% trained in CPR

■ Greater tahn 10% trained in CPR

FIGURE 5 - Percent of population trained in CPR. - 1977

Source: Unpublished Data from the Montana Heart Association

7.2

CANCER

GOAL: To reduce the mortality rate in Montana from cancer by 10 percent.

RECOMMENDED ACTIONS

1. Promote treatment within the state of Montana to eliminate out of state travel, easing treatment costs.
2. Support plans to involve civic organizations in cancer education programs.
3. Advocate the development of informational systems to make cancer support services more accessible.
4. Advocate yearly pap smears for women 18 and over for earlier diagnosis of uterine cancer.
5. Through the American Cancer Society, encourage more women to engage in Breast Self-examination.
6. Through civic and charity organizations, encourage more participation in smoking cessation clinics.

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1.0 Health Status Indicators

Cancer encompasses a large number of diseases characterized by the uncontrolled growth and spread of abnormal cells. In most cases, these cells build up into tumors which in turn compress, invade, and destroy normal tissues. The American Cancer Society estimates that of every six people who get cancer, two will be saved and four will die. Of the four who will die, one might have been saved had earlier diagnosis and treatment been implemented. The chance that an individual under 20 years of age will develop cancer during some point in his or her life is approximately 25 percent.1)

The economic cost of cancer in the United States is estimated to exceed $15 billion annually. The greatest financial burden for cancer care involves hospitalization. Based on data from an American Cancer Society conference in 1972, a typical hospital stay for a cancer patient averaged 16 days and cost about $1,500. Direct costs alone for cancer care, such as hospital, nursing home care, physician fees, nurse services, drugs and other treatment, amount to $3 billion annually.2)

This paper will focus on six of the most common types of cancer in Montana. They are:

- --Lung Cancer
- --Colon Cancer
- --Breast Cancer
- --Uterine Cancer
- --Prostate Cancer
- --Skin Cancer

The first five of these are the leading causes of cancer mortality in Montana. The sixth, skin cancer, is not normally a death-threatening disease, but appears to have a high incidence in the state.

Unfortunately, Montana has no functioning tumor registry from which local estimates of the incidences of the types of cancers can be made. Consequently, estimates of the number of new cases of cancer annually found in Montana are based on estimates from the 1971 National Cancer Survey. These estimates are shown in Table 1.

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	Breast	Colon-Rectum	Lung	Uterus (invasive)	Prostate
Estimated new cases	250	300	300	150	200
Estimated deaths	100	175	275	30	75

TABLE 1 - Estimated New Cancer Cases and Deaths in Montana for 1978, by Site Category

Source: 1978 Cancer Facts and Figures, American Cancer Society

Although the mortality rate for Montana is somewhat less than the national average, cancer is the second leading cause of death in Montana; accounting for nearly 1,200 deaths in 1976. It is primarily a disease of middle and old age individuals. In Montana, the median age of patients at diagnosis for the five types of cancer being considered here is:

--Lung - 63.7 years
--Colon - 69.1 years
--Breast - 67.5 years
--Cervix Uteri - 38.0 years
--Prostate - 73.9 years

To discriminate the magnitude of the cancer problem between counties, age-adjusted mortality rates for the period between 1950 and 1969 are used. These are shown in Figures 1 through 7. Based upon the data from which these figures were made, it appears that Cancer of the Lung is a major problem in Silver Bow County, and Cancer of the Prostate is a problem in Lewis and Clark County. The mortality rates for both of these diseases in these two counties are in the upper 10 percent of the nation and are significantly higher than the national average. Other counties have mortality rates that are in the upper 10 percent of that nation, but their rates are not significantly higher than the national average for the period.

2.0 Primary Prevention Strategies

In Montana, the greatest opportunity for saving lives through prevention or early diagnosis and treatment are programs targeted to the at risk populations and directed to the site categories accounting for the greatest mortality. Based on epidemiological studies, certain risk factors have been identified which increase the likelihood of falling victim to some type of cancer. These

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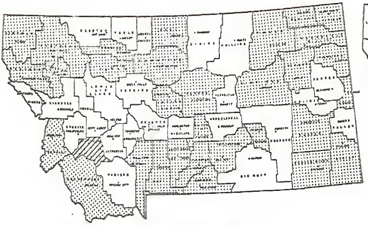
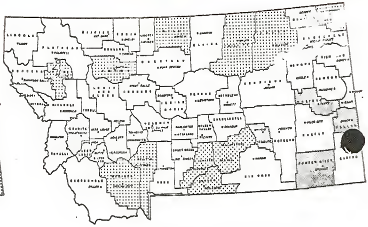
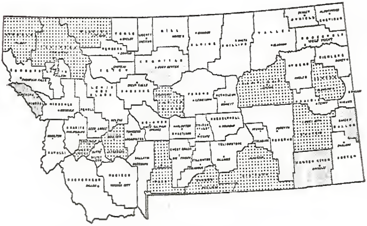


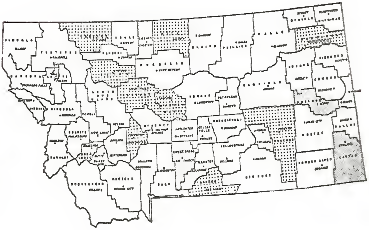
LUNG CANCER, WHITE MALES



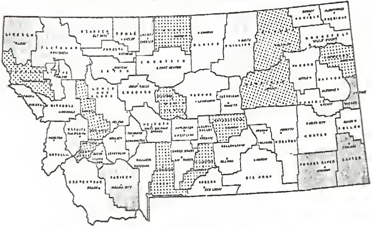
LUNG CANCER, WHITE FEMALES



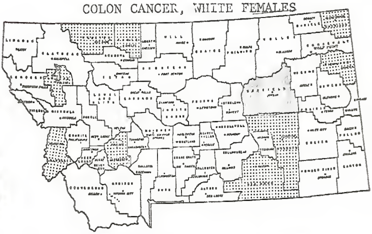
COLON CANCER, WHITE MALES



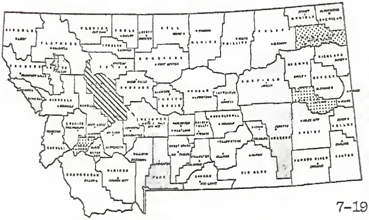
COLON CANCER, WHITE FEMALES



BREAST CANCER, WHITE FEMALES



UTERINE CANCER, WHITE FEMALES



PROSTATE CANCER, WHITE MALES

▨ -Highest 10% in the Country (significantly higher than U.S.)

▒ -Highest 10% in the Country (Not significantly higher than U.S.)

☐ -Not significantly different from U.S.

⠿ -Significantly lower than U.S.

Source: T.J. Mason et al
Atlas of Cancer Mortality for U.S. Counties: 1950-1969
DHEW Pub. No.
(NIH) 75-780

risk factors currently include age, sex, race, occupation, family history, and personal habits. The populations at risk for the major cancer sites are discussed below. These groups may serve as potential target populations for cancer education programs.

- At least 80 percent of lung cancer is caused by cigarette smoking. Risk increases if a close relative has had lung cancer. There is also a substantial increase in the risk of developing cancer in the larynx, oral cavity, and bladder among cigarette smokers. For women, the majority of lung cancers occur among those 55 to 64 years of age. Women who have smoked one or more packs of cigarettes a day for at least 20 years, and who began smoking before the age of 20, are five times more apt to die from lung cancer than women who have never smoked. Similarly, men who have smoked at least two packs of cigarettes per day for 20 years and who started smoking before age 15, are 15 to 20 times more apt to die from lung cancer than men who have never smoked. Most lung cancers among men occur in the 60 to 69 year old age cohort.

- Cancer of the colon and rectum and its possible relationship to present day dietary practices is currently being studied, especially the role of highly processed foods in relation to slower transit time and increased exposure of the intestinal tract to the carcinogens.

- Breast cancer occurs mainly in women over 35 years of age, with the risk of developing breast cancer increasing with age. Breast cancer is more prevalent among women who have never had a child or who bore the first child after the age of 25 years. Risk also increases among women whose mothers or sisters have had breast cancer or women who experienced early menarche and/or late menopause. Finally, cancer in one breast increases the risk for the other breast.

- Cancer of the prostate gland is rare among men under 50 years of age. This cancer does have a familial tendency in that it generally occurs among family members with greater frequency than in non-family members.

- Cancer of the uterus (cervical) occurs most often in women 45 to 69 years of age. Social factors play a significant role with this type of cancer, such as low income background, past history of sexual intercourse with multiple partners, early age at first intercourse, and lack of regular physical checkups or Pap tests.

- The risk of developing skin cancer is highest for farmers and other outdoor occupations exposing the individual to frequent sun contact. This cancer has also been linked to those persons with frequent contact with coal, tar, pitch, or creosote.

By definition, primary prevention indicates eliminating exposure (or increasing resistance) to prevent the disease from getting started. Of the variety of factors found associated with cancer, tobacco smoking is the most ameniable to influence, and the most clearly indicated as a carcinogen. A discussion of the estimated number of cigarette smokers in Montana and current activities in this area is presented in the Heart Disease Component and will not be repeated here.

Occupational exposure can also be controlled, once identified. The number of cases involved with each cancer causing agent, however, is generally small and limited to (often intense) occupational exposure. Nevertheless, the establishment of employee health surveillance programs would help detect possible health hazards indicating cancer.

An additional preventive strategy emerging today is the role of nutrition in cancer prevention. A Senate subcommittee on nutrition estimates that 40 percent of the cancers in men and 60 percent of the cancers in women are nutritionally related.3) However, many authorities feel that the role of nutrition in the induction of cancers is highly speculative and unconfirmed, in spite of the political attention being paid to it.

Finally, although cancer occurs mainly in adults, proper health habits and a familiarity with cancer should begin early in life. The American Cancer Soceity has developed a program directed to children in kindergarten and on up to the third grade entitled "Early Start To Good Health." Most Educational programs, which are offered free of charge by the American Cancer Society, involve three components; a film, a medical or lay speaker, and a discussion session designed to involve participants and help promote positive health habits.

In summary, anti-smoking programs and selected, specific occupational hazard prevention programs include the only primary prevention strategies available. The effectiveness and efficiency of general, untargeted, and non-specific health education remains unproven, as contrasted to directed health education (stop-smoking clinics) or public information (increased awareness).

3.0 Possible Screening Strategies

The objective of a cancer screening program is to detect cancer before it has spread, so that it can be treated promptly by surgery, radiation, or chemotherapy, or a combination of these methods. Most cancer detection techniques are too expensive to use in a mass screening program for the general public.

Screening programs for cancers have had demonstrable impact only for two sites--cervical cancer ("Pap Smear") and probably breast cancer in women. (Breast self-examination)

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Uterine cancer could be substantially reduced as a cause of death if every adult woman had a Pap test with her regular health checkup, and if every woman over 35 years old would report any abnormal bleeding to her physician. The Pap test is also an effective method to detect cervical cancer. This procedure allows for diagnosis before any symptoms appear, thus enabling treatment to be almost 100 percent successful. The American Cancer Society recommends a pelvic examination as well as a Pap smear for women at menopause for the detection of endometrial cancer.

Breast self-examination can aid in the detection of breast cancer during the early stage of development. More than 90 percent of all breast cancers are discovered by the women themselves. However, a 1972 survey sponsored by the American Cancer Society concluded that 75 percent of the adult female population have done breast self-examination at least once, but only 24 percent were doing it on a monthly basis.

Recently, the American Cancer Society and the National Cancer Institute jointly funded 25 Breast Cancer Detection Demonstration Projects across the nation in order to demonstrate the value of xeromamonography and thermography (recording heat patterns of the breast) in finding early breast cancers.

This, however, was not shown to be cost effective for a mass screening effort of the general public. In addition, questions were raised about the risks of inducing cancer from radiation exposure. Consequently, the American Cancer Society is suggesting that mammograms be routinely done on women under 50 only when they have had a previous history of breast cancer; have had a family history (i.e. mother and/or sisters) of breast cancer; or when breast cancer is suspected. At the same time, this question has stimulated research into developing low-dose mammography units.

Screening for a colo-rectal cancer by tests for occult blood in the stool is currently a major project of the American Cancer Society. There is insufficient data to determine, at this time, the effectiveness or efficiency of such screening.

A 1977 Gallop survey has indicated that about 58 percent of the people over 40 would be willing to self-administer the test if they were shown how. About 800 from three counties in Montana (Lincoln, Garfield and Ravalli) recently participated in a pilot program investigating the applicability of this test to mass screening.

The most efficient strategy for screening for cancer (and other diseases) still is the doctor's office. Even though the "routine physical exam" or "check-up" has a low yield ("recycling the hypochondriacs"?), many tests and evaluations can be performed at one place usually at one visit.

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4.0 Intervention and Medical Management

Cancer treatment today consists of combined therapy regimes, including surgery, radiation therapy and chemotherapy. Modern surgery yields better results with less radical operations than in the past; radiation therapy has fewer side affects and chemotherapy attacks some advanced cancers and prevents tumors from recurring in many cases.

It is emphasized that today, the therapy of cancer is necessarily multi-disciplinary--surgery, radiotherapy, chemotherapy, rehabilitation, and combinations. Stronger emphasis needs to be placed on inter-center cooperation, on referral patterns from primary physicians to Montana centers, to out-of-state specialty centers and back.

Proposed Cancer Programs in Montana, built around radiation therapy units, are addressed in Chapter 3 of this plan (Section 3.2).

5.0 Rehabilitation

Patient support services are frequently available through local programs, as well as through other programs associated with the Montana Division, American Cancer Society. The emotional counseling and support from other patients who have undergone a similar surgery or experience (mastectomy, laryngectomy, ostomy) is well utilized in many communities.

The basic service program offered by the American Cancer Society includes: 1) information and counseling services not only on ACS services, but also community health services and other resources available to the cancer patient and his or her family; 2) equipment loans, such as wheelchairs and sick room supplies; 3) surgical dressings prepared by volunteers; and 4) transportation to and from the doctor's office, clinic, or hospital for treatment.

In addition, the American Cancer Society sponsors the Reach to Recovery Program. This program uses former mastectomy patients as volunteers to counsel, teach, and assist patients having a recent mastectomy. Currently trained Reach to Recovery Volunteers are located in Ravalli, Missoula, Flathead, Lewis and Clark, Silver Bow, Cascade, Fergus, Yellowstone, Gallatin, Custer, Dawson, Roosevelt, and Hill Counties.

Finally, many patients participate in specialized self-help groups. For example, Ostomy clubs are presently located in Billings, Butte, Missoula and Great Falls.

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REFERENCES

[1] 1976 Cancer Facts and Figures, American Cancer Society, p. 3.

[2] Ibid, p. 31.

[3] Cancer Research Faces 'Crisis of Credibility,' Missoulian, Tuesday, June 13, 1978, p. 2.

[4] 1978 Cancer Facts and Figures, American Cancer Society, p. 16.

[5] Ibid, p. 16.

[6] Ibid, p. 17.

[7] Ibid, p. 23.

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REFERENCES

[1] 1976 Cancer Facts and Figures, American Cancer Society, p. 3.

[2] Ibid, p. 31.

[3] Cancer Research Faces 'Crisis of Credibility,' Missoulian, Tuesday, June 13, 1978, p. 2.

[4] 1978 Cancer Facts and Figures, American Cancer Society, p. 16.

[5] Ibid, p. 16.

[6] Ibid, p. 17.

[7] Ibid, p. 23.

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7.3

ALCOHOLISM

GOAL: To reduce the incidence and prevalence of alcoholism in Montana and to reduce the number of deaths due to alcohol related causes by 10%.

RECOMMENDED ACTIONS:

Organization of Services

Support the continued emphasis toward developing a coordinated network of services, programs and counselors to increase effectiveness and efficiency of treatment.

Public Education

Stress early intervention for appropriate screening and treatment especially with youth.

Utilize the media for referrals to community support organizations with proven success rates.

Prevention and Detection

Support the prevention strategies of the Alcohol and Drug Abuse Division of the State of Montana.

Reimbursement

Continue to encourage third party payors to provide coverage for alcohol treatment and rehabilitation.

Encourage local authorities to use alcohol tax monies for alcohol programs.

Legal Changes

Support the constitutional amendment and legislative initiative to raise the legal drinking age to 19.

1.0 Health Status Indicators

At the present time, there are no precise estimates of the number of alcoholics in Montana. The Alcohol and Drug Abuse Division, within the Department of Institutions, estimates that 8.5 percent of the general population and 70 percent of the Indian population are alcohol abusers. They also state that the number of alcohol-related accidents and the per capita consumption rate of alcoholic beverages are increasing.

In this report two proxy indicators of alcohol abuse are used to show differences among the counties within Montana. They are; 1) the five-year crude death rates from cirrhosis of the liver, and 2) the five-year death rates from motor vehicle accidents.

Alcoholic cirrhosis of the liver, as a cause of death in Montana, was ranked the number ten cause of death in 1976. Previously, it had not been ranked in the top ten. In 1976, 119 individuals were reported to have died from cirrhosis of the liver; 79 males and 40 females.

During 1976, approximately 56 percent of the drivers and 26 percent of the passengers killed in motor vehicle accidents had been drinking (.05 percent or more blood alcohol).

Table 1 shows these two rates by subarea and county for the period between 1972 and 1976. The statistics are of limited value since they are not age adjusted. Figures 2 and 3 present quartile maps indicating those counties which have had the highest death rates for cirrhosis of the liver and motor vehicle accidents respectively.

The Alcohol and Drug Abuse Division, which administers alcohol programs in Montana has identified five groups to which special programs are to be developed. These are:

- Native Americans
- Women
- Youth
- Rural Areas
- Elderly

During the past year (September 1977 to February 1978), 25 percent of the admissions to alcohol treatment programs were Native Americans; about 20 percent were women, and 8 percent were under 20 years of age.

In addition, 17 percent of the clients admitted to DWI Court Schools were under 20. Statistics indicate that alcoholism, coupled with misuse of prescription drugs, is by far the greatest drug problem among Montana's elderly.

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	Subarea and County	Crude Death Rate for Cirrhosis of the Liver (1972-1976)	Crude Death Rate for Motor Vehicle Accidents (1972-1976)
	Northwestern		
	Lincoln	1.2	35.3
	Flathead	9.8	35.9
	Sanders	18.0	79.9
1	Lake	10.9	81.2
	Mineral	5.8	29.2
	Ravalli	1.1	50.0
	Missoula	6.9	32.4
	North Central		
	Glacier	42.7	96.1
	Toole	18.2	61.8
	Pondera	11.4	48.4
	Teton	15.6	24.9
	Cascade	13.1	29.9
	Chouteau	6.4	48.2
2	Hill	12.3	34.8
	Blaine	5.8	72.3
	Liberty	16.3	56.9
	Southwestern		
	Beaverhead	22.0	56.1
	Madison	7.2	53.8
	Gallatin	6.6	27.3
	Lewis and Clark	14.9	34.2
	Broadwater	7.2	64.7
	Jefferson	20.6	32.4
3	Meagher	18.3	91.7
	Silver Bow	27.0	45.4
	Deer Lodge	17.0	35.2
	Powell	14.0	41.9
	Granite	15.0	45.1
	Park	11.6	48.3
	South Central		
	Fergus	1.6	34.3
	Petroleum	30.3	90.9
	Judith Basin	0.0	45.1
	Wheatland	24.8	33.1
	Golden Valley	0.0	85.1
4	Musselshell	4.8	67.3
	Sweet Grass	19.4	45.2
	Stillwater	0.0	39.2
	Carbon	12.8	35.7
	Big Horn	35.9	87.0
	Yellowstone	13.2	33.0
	Eastern		
	Valley	16.9	35.4
	Daniels	12.9	51.6
	Sheridan	18.1	50.7
	Roosevelt	42.6	89.1
	McCone	14.7	66.2
	Garfield	0.0	47.1
	Richland	10.1	44.5
5	Dawson	5.5	38.6
	Wibaux	0.0	70.4
	Rosebud	43.5	79.3
	Treasure	0.0	66.7
	Powder River	0.0	68.4
	Custer	11.6	46.3
	Prairie	10.9	43.5
	Phillips	11.1	40.7
	Fallon	10.3	41.0
	Carter	0.0	10.8

TABLE 1 - Five Year Crude Mortality Rates in Montana from Cirrhosis of the Liver and Motor Vehicle Accidents (1972-1976)

SOURCE: Unpublished Data from the Bureau of Records & Statistics

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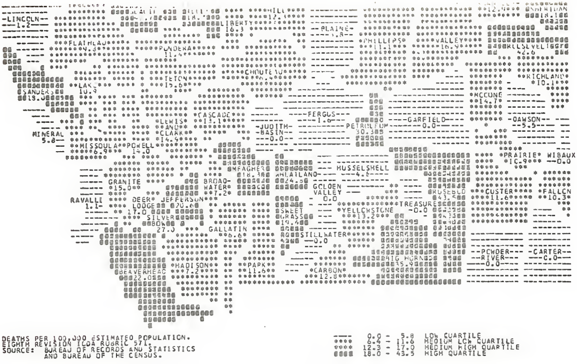

FIGURE 1 - Five Year Death Rates for Cirrhosis of the Liver: Montana Counties, 1972-1976 (by place of residence)

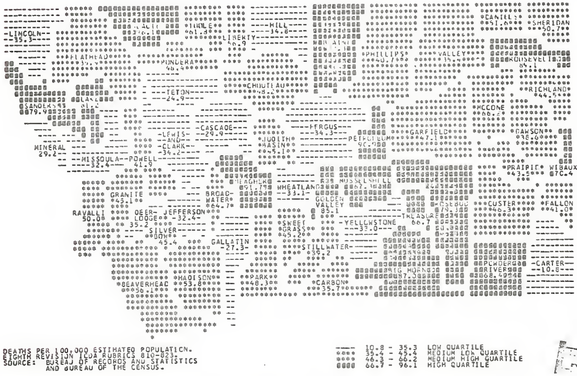

FIGURE 2 - Five Year Death Rates for Motor Vehicle Accidents: Montana Counties, 1972-1976 (by place of residence)

SOURCE: Unpublished Data from the Bureau of Records & Statistics

Rural areas are a primary target because planning, needs assessment, and program implementation are more time-consuming and expensive because of the vast distances and low population densities involved.

2.0 Prevention Strategies

The prevention programs undertaken in Montana appear to be primarily focused at youths. The Alcohol and Drug Abuse Division (ADAD) has set up a Statewide Youth Task Force to recommend possible programs that can be undertaken. Recommendations, to date, have suggested developing alternative programs for youths (such as youth centers), developing employment opportunities, and making up-to-date materials available to youths and persons working with youths.

ADAD in coordination with the Office of Public Instruction, has also developed curricula for schools (grades kindergarten through 12) which deals with alcohol and drug abuse. This curricula will be available for the 1979-80 school year. ADAD is hoping to obtain a legislative mandate to ensure that alcohol and drug education courses will eventually be delivered in all schools.

The Department of Health and Environmental Sciences also maintains an alcohol and drug abuse education film library under contract from ADAD. These films are available to any individual or group in Montana for the cost of mailing. It is frequently used by schools and civic groups.

The Division also intends to sponsor a seminar, "Alcohol and the Elderly," during the upcoming year. This seminar will be patterned after their successful program "Drugs and the Elderly."

ADAD has recently been given a grant from NIAA to set up a prevention task force. This group will be established within the next year.

In addition, a separate group, the Alcohol Prevention Trust is active in Media Campaigns, Public Education, and sponsoring Essay Contests.

3.0 Screening and Early Intervention Strategies

At the present time, self-diagnosis or family awareness appear to be the first steps in delivering alcohol services to the abuser. Of the persons admitted to alcohol programs between September, 1977 and February, 1978, 29 percent were self referrals and 8 percent were referrals by the patients immediate family. Court referrals constitued another large block of people coming into treatment. They referred 13 percent of all the admissions.

Another prevention and early intervention program sponsored by the Highway Traffic Safety Bureau, Department of Community Affairs and the Highway Patrol Bureau, Department of Justice, is the DWI Court Schools. Many persons convicted of driving under the influence of alcohol are required by the court to attend a course of six sessions - two hours a piece - dealing with alcohol education. Most of the state approved, off reservation, alcohol programs serve as the schools. A fee of $50 is charged, and usually the court assesses this as part of the fine.

It has been estimated that about 25 percent of those attending the school are referred to an alcohol treatment program, however, not all participate.

4.0 Treatment Programs

ADAD is currently implementing a regional, community-based, concept for delivering alcohol treatment services with satellite counselors providing services to outlying areas. Figure 3 shows the location of these programs. Utilization statistics and general goals have already been addressed in the Alcohol Services Component.

To strengthen the programs and to develop a better financial basis for the programs, ADAD is working to maximize third-party payments for alcohol treatment. One strategy is to amend the Insurance Code, through legislative action, to require alcohol service coverage. A second strategy is to approve programs (annually) in accordance with the state law and to certify alcohol counselors. At the present time, ADAD is also encouraging the various programs to become accredited by JCAH. The certification program for professionals is now operating on a voluntary basis. ADAD is suggesting that the legislature make it a mandatory program for all counselors in state programs. It is felt that these two certification programs will reduce the third party paying resistance toward reimbursement for alcohol and drug services.

5.0 Rehabilitation and Aftercare

In order to be approved by ADAD, they must have the followup services. Most aftercare services, however, appear to be provided by local Alcoholics Anonimous (AA) and associated programs (Alanon, Alateen). These programs are found in communities throughout the state.

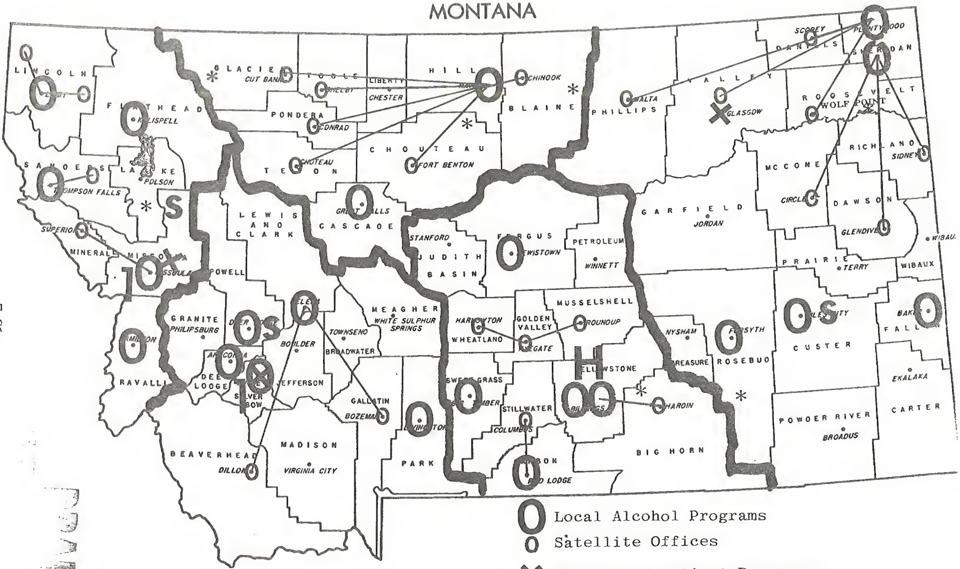

Figure 2 - Alcohol Programs in Montana (1978)

APPENDIX 1

BACKGROUND INFORMATION

1.0 Authority

The Health Planning and Resources Development Act of 1974, also known as P. L. 93-641, created a network of health systems agencies throughout the country responsible for health planning and development. This legislation has two principal parts, Title XV and Title XVI. Title XV deals with health planning and is responsible for establishing 213 "health service areas" nationwide. In each health service area, a health systems agency was created. The geographic areas which these agencies are to represent have been designated by the respective state governors and approved by the Department of Health, Education and Welfare. In Montana, one health systems agency has been designated to serve the state. The second principal part of P. L. 93-641, Title XVI, dictates the policy for authorizing grants or loans to the states for the modernization and construction of new outpatient facilities, and for the conversion of un-needed facilities to provide health services that are needed.

1.1 Mission and Purpose of the Health Systems Agency

Two major requirements of a health systems agency are to establish a health systems plan (HSP) and an annual implementation plan (AIP) for the area it serves. The health systems plan is to identify the major, local health problems, analyze the service resources available to meet the needs of patients experiencing health problems, and propose improvements in the delivery of these services. The proposals for improvements are formulated in terms of goals and objectives for the health care system. The annual implementation plan is shorter than the health systems plan and serves a different purpose. The AIP lists objectives for attaining the goals stated in the HSP for a one year period; it is a short-term plan for implementing the HSP. In contrast, the HSP presents a comprehensive overview of both the health of the community and the health care system and recommends long-term solutions for their improvement.

The National Health Planning and Resources Development Act (P. L. 93-641) mandates a comprehensive planning, regulatory and developmental effort to address three major goals:

- the improvement of the health status of the nation's population
- the restraint of escalating health care costs
- the expansion of access to primary health care services for the population.

Thus, the purpose of the Health Systems Agency in Montana, as stipulated by P. L. 93-641, is:

- to improve the general health of all Montana citizens

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- to restrain increases in cost of providing medical services in Montana
- to prevent any unnecessary duplication of health resources in the state
- to increase accessibility, acceptability, continuity, and quality of medical services

1.1.1 Montana Health Systems Agency Responsibility

The Montana Health Systems Agency is responsible for addressing four major tasks. First, it is the responsibility of the HSA to gather and analyze data concerning:

- the status of the health of Montana citizens
- the status of the health care delivery system and its use in Montana
- the effect of the existing health care delivery system on health of Montanans
- the number, type, and location of the health resources within the state, and the patterns of utilization of those resources
- the environmental and occupational exposure factors affecting health conditions.

Secondly, the Montana Health Systems Agency is required to draw up an annually revised health systems plan (HSP) and an annual implementation plan (AIP).

Thirdly, the Montana Health Systems Agency, under full designation, is to establish an Area Health Services Development Fund. From this fund the HSA may award grants and enter into contracts for planning and developing projects and programs which it determines are needed in Montana and which advance its plan. These funds cannot be used to build new facilities or to deliver medical services.

Finally, since the HSA is fully designated, it will review, approve or disapprove all federal grant money under:

- the Public Health Service Act
- the Community Mental Health Centers Act and
- the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act

The review, approval or disapproval of all federal grant money will be dependent upon the health plan adopted for Montana.

The Montana Health Systems Agency will also review for approval or disapproval the use of any federal funds within Montana made through allocations to the state under formula grant programs. Other HSA responsibilities include:

- coordinating its activities with Professional Standards Review Organizations (PSROs) as well as with other appropriate planning and regulatory agencies

- assisting and working with the State Health Planning and Development Agency in the performance of its planning functions
- recommending to the state on an annual basis projects for facility modernization, construction, etc.
- reviewing at least every five years all institutional health services in the area.

APPENDIX 2

HEALTH CARE DELIVERY SYSTEM MODEL

1.0 Health System Overview

To provide an overview and a reference point for health plan development, it is necessary to first develop a model depicting the current health care delivery system. The model should address the goals and objectives of the Health Systems Agency and should include the following:

- A reflection of service orientation since P.L. 93-641 specifically addresses the necessity to plan for health services. HSA project review requirements, as outlined in Section 1122 of Title XI of the Social Security Act as amended (Section 221 of P.L. 92-603) and P.L. 93-641, also necessitate that the model reflect a service orientation.

- The provision of a systems approach which illustrates a method for integrating and coordinating the required resources to deliver health services and programs.

- A basis for describing the Health Care System as contrasted with the Medical Care System (generally considered the illness and treatment portion of the Health Care System).

- An incorporation of the following types of services:

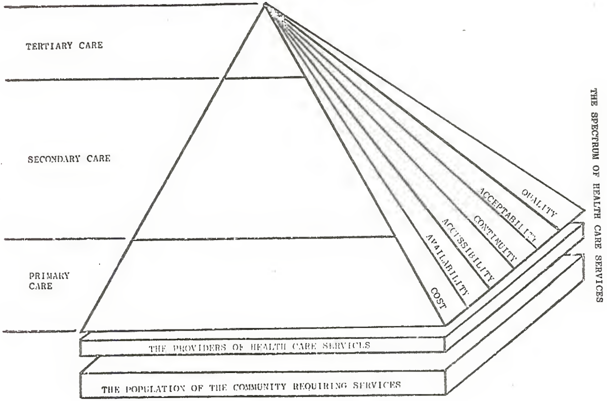
  - health promotion and protection
  - prevention and detection
  - diagnosis and treatment
  - habilitation and rehabilitation
  - maintenance and support services

- A reflection of a regional approach toward planning to insure the delivery of a full spectrum of health services to a defined population. In order to use specific services optimally within a region, the regional approach toward planning will have to balance the issues of cost, availability, accessibility, continuity, acceptability and quality.

- An analysis of the system that is understandable to both the consumers and the providers. Rational community participation is required in the planning process in order to establish goals and objectives, as well as in making the final Health Systems Plan decisions.

FIGURE 1

THE COMMUNITY HEALTH CARE SYSTEM MODEL


TERTIARY CARE
SECONDARY CARE
PRIMARY CARE
QUALITY
ACCEPTABILITY
CONTINUITY
ACCESSIBILITY
AVAILABILITY
COST
THE PROVIDERS OF HEALTH CARE SERVICES
THE POPULATION OF THE COMMUNITY REQUIRING SERVICES
THE SPECTRUM OF HEALTH CARE SERVICES

2.0 The Community Health Care System Model

A model which satisfies most of the above specifications is the community health care system model. The model is visually displayed in Figure 1 as a pyramid. It represents all of the health services that are available to serve the population of the planning area. The face of the pyramid represents the spectrum of health services as illustrated on the left. Special services are shown toward the top of the pyramid to illustrate that fewer services are required to serve the base planning population. The right side of the pyramid is divided vertically to illustrate six primary factors: cost, availability, accessibility, continuity, acceptability and quality.

The planning population is shown at the base of the pyramid. Usually the population enters the health service system at the bottom of the pyramid or through a primary care provider. Ideally, people take active responsibility for their own well-being and health maintenance and, for the most part, stay out of the medical care system. If they require medical care services, they should seek these services beginning at the primary level and progress, through providers, up through the three levels of care (primary, secondary and tertiary). The type, amount and organization of the health care resources depend upon the interaction between the levels of care, the other components, and the patient flow.

3.0 The Four Different Levels of Health Care Services

Using the pyramid presented in Figure 1 as a reference, health care services are divided into four levels of care: premedical care, primary care, secondary care and tertiary care. The four levels of care have three characteristics which describe the organization of health services. The first characteristic is functional, i.e., the levels of care provide a method through which services can be catalogued and described by the type of service, by the area, or by the patient utilization patterns. Secondly, the levels of care apply to the planning process as they can be placed in a practical framework for the purpose of description, measurement and analysis. Thirdly, the levels of care describe general characteristics of the integral parts of the system. The levels of care are useful in describing and tracing the process by which patients are referred through the system.

- Pre-Medical Care

  Pre-medical care services include measures taken to improve the environment in order to preserve healthful conditions, as well as measures taken by individuals to improve and maintain their own levels of well-being. The environmental components include public services such as air pollution control, basic sanitation measures, water pollution control, solid waste and social services. The personal measures

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comprise those actions taken by individuals to improve or maintain their levels of health. Personal measures include stress control, weight control, exercise, nutrition, and personal safety actions. Ideally, it is in the pre-medical care level of the health system that individuals should concentrate their attention. Individuals enter the next level of care when seeking preventive medical services such as immunization, or when they become ill and require medical attention.

- Primary Care

It is at the primary care level that patients should enter the medical care delivery system. Primary care focuses on ambulatory care and those services which require a high frequency of utilization, such as routine preventive care, diagnosis and treatment of minor physical and mental illnesses, patient education, management of chronic conditions, routine dental care, and certain rehabilitative services.

General practitioners, internists, pediatricians, and obstetricians usually administer primary medical care services. These services are also provided by other health professionals through public health departments, county clinics, hospital emergency rooms, community health centers, group practices, optometrists, dentists, voluntary health agencies, outpatient rehabilitation centers, etc. Primary care services should be available as close as possible to the consumer's home.

- Secondary Care

Secondary care can be viewed as the middle ground both in terms of medical treatment and in frequency of patient utilization. Secondary care services require a greater population than primary care services to justify their development since they are utilized less frequently by the general population and usually require substantial capital investment. Even though the services are fewer in number, they will always be found within the health service area.

Individuals requiring this level of care generally have health problems serious or complex enough to require a visit to a specialist and/or a health facility (i.e., a general hospital, nursing home or community mental health center).

The community hospital serves as one of the major facilities for secondary care. The community hospital provides trained personnel, special diagnostic equipment, and inpatient services. Hospital

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services typically provided at the secondary care level include inpatient services for general surgery, medical treatment, and psychiatric diagnosis and treatment. Personal care, skilled and intermediate care, and boarding comprise the spectrum of long-term care services. The secondary level of care may also include those services generally described as residential care, day care, and rehabilitation. Other services which fall in this category are mental health, mental retardation and developmental disabilities and substance abuse services.

- Tertiary Care

Tertiary care services are those special services that because of complexity, cost, and/or relatively low levels of utilization are planned to be located within a large catchment area. In some cases, these services may not be located in a health service area, either because the area is too small or because the service is too specialized. The tertiary level services represent a continuum of preventive, diagnostic, treatment and rehabilitative services for the acutely ill patient, as well as specialized services for patients with chronic, complicated and catastrophic illnesses. Tertiary care includes highly sophisticated diagnostic and therapeutic procedures such as radiation therapy, renal dialysis, and major hospital trauma emergency department services. These services are typically provided in large referral hospitals.

Patients are usually directed to highly specialized services either because the disease or illness is difficult to diagnose or is rare in occurrence, or because the personnel and technical resources available to treat the disease process are relatively scarce and/or expensive.

4.0 Criteria Considered for Provision of Service

The right-hand side of Figure 1 shows the six factors to be considered in the provision of health services. They are also the factors around which criteria and standards are usually developed. They include:

- Cost

The expectations concerning results of P.L. 93-641 are high in areas such as controlling rising costs and removing financial barriers to care. The major tool the MHSA can use to influence these factors is in reviewing the capital expenditure sector of resources at the tertiary and secondary service levels. The immediate planning responsibilities of

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the MHSA, with respect to financial resources, are oriented toward preparing a plan which will allow for the review and comment of capital expenditures for facilities and equipment by institutions.

The major questions to be addressed in reviews on services involving major capital expenditures are 1) can and should the service being developed be self supporting in a reasonable period of time? (Some services are provided in response to a "social need" and must continually be subsidized), and 2) is the service going to duplicate existing services currently being provided?

- Availability

Availability deals with the supply and types of health services that can be produced given the supply and feasible alternative allocation of resources (personnel, equipment, facilities and finances) to produce those services. A goal of the MHSA is to develop health services offered to populations residing in medically underserved areas. Inequitable resource distributions and inaccessibility to health care resources are particularly evident in rural areas.

- Accessibility

Accessibility deals with the ability of the population or a segment of the population to obtain available health services. This ability is determined by economic, temporal, locational, architectural, cultural, organizational and informational factors. For example, rural areas have fewer services available and rural residents must travel greater distances to gain access to health care. In addition, widely dispersed populations and communities which do not have an organized health care system create a situation in which they are less able to plan and compete for medical resources and services.

- Continuity

Continuity is concerned with the extent of effective coordination of services provided to individual patients and the community over time, within and among health care settings.

Health services should follow a logical progression from detection, through diagnosis and treatment, to follow-up. Screening programs should be set up so that if a suspected illness is spotted, it can be diagnosed and treated. Medical specialists should strive to keep the primary physician informed on the patient's progress. Persons with chronic diseases should be followed after the initial treatment is given and the initial episode of disease overcome. All of these are aspects of continuity.

- Acceptability

  Acceptability is the level of satisfaction expressed by consumers of services and providers of services with the availability, accessibility, cost, quality and continuity of the health care system.

  Patient satisfaction is considered for several reasons. First, patients provide the social mandate for the very existence of health care. Second, consideration of patient satisfaction preserves the humane character of health care (caring) along with the biomedical and scientific features (curing). Finally, patients are active participants in promoting or retarding the healing process. The ultimate success of many health care interventions is dependent upon the cooperation of the patient. Patient cooperation, in turn, is dependent to some degree on the level of the patient's satisfaction and the value he or she perceives in the care.

- Quality

  Quality addresses the degree to which services provided are properly matched to the needs of the population, are technically correct, and achieve beneficial impact. Quality can be considered in three dimensions: 1) the structural aspects of resources and services; 2) the process of producing and delivering services; and, 3) the outcome of services on health status, environment, and/or behavior.

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APPENDIX 3
STATISTICAL DESCRIPTION OF THE MONTANA SERVICE AREA

1.0 Introduction

The purpose of this section is to present summary information of the statistics most used in health planning and to give the reader an overview of the types of problems faced in planning health services in Montana. The statistics can be generally grouped into four areas - population estimates, projections, socio-economic indicators, geographical descriptions, economic characteristics and health status statistics. Each of the tables presented here are extracted from published documents and more refined statistics, if needed, can be found in the original documents.

Information describing the health care delivery system, resources currently available, and utilization statistics are found in the service compoments which comprise the bulk of the plan. More detailed data on these services can be obtained from the Montana Health Data Management System. At the present time the Hospital Annual Reports, Long Term Facilities Annual Reports, Physician Manpower, and Dental Manpower information are in this data base.

Data summarizing the costs of health services is currently unavailable. It is expected that the State Health Plan currently being developed by the State Health Planning and Development Agency will contain a chapter describing health care costs in Montana.

2.0 Population Characteristics

The Health Systems Plan is supposed to be a blueprint for the health care delivery system five years in the future. Consequently, projections have to be made as to the number of people who will be needing health care services in the future. Throughout this document, the HSA has used 1979 estimates furnished by the Bureau of the Census to depict the current situation. To estimate population changes, projections for 1985 which were prepared and published by the Department of Community Affairs were used. Both estimates used counties as their geographical base. Tables 1 through 5 compare the 1970 census population with the 1976 estimates and 1985 projections for each county and subarea.

It is well documented that different age groups use different health services. For example, children under five could be the primary target of immunizations, females in the child bearing years (generally between the ages 15 and 44) need prenatal and postnatal care. Males between 45 and 64 are the most prone to heart attacks and the elderly (over 65 years of age) the primary users of long term care facilities and home health

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CENSUS POPULATION

NORTHWESTERN

County	1970 1)	1976 2)	1985 3)
Lincoln	18,063	16,400	16,589
Flathead	39,460	45,400	56,402
Sanders	7,093	8,000	9,588
Lake	14,445	17,400	19,876
Mineral	2,958	3,500	4,325
Ravalli	14,409	18,500	21,142
Missoula	58,263	65,500	78,171
TOTALS	154,691	174,700	206,093

1) US Bureau of the Census Reports , 1970
2) US Bureau of the Census Estimate
3) Montana Department of Community Affairs Projections medium series, county totals, 1977

TABLE 1 - 1970 census figures, 1976 census estimates and 1985 projections of Montana's population by County, Northwestern Montana

CENSUS POPULATION

NORTH CENTRAL

County	1970 1)	1976 2)	1985 3)
Glacier	10,783	10,900	11,961
Toole	8,839	5,300	5,174
Pondera	6,611	7,000	7,462
Teton	6,116	6,100	7,875
Cascade	81,804	83,600	88,274
Chouteau	6,473	6,200	6,491
Hill	17,358	18,100	19,641
Blaine	6,727	7,400	7,191
Liberty	2,359	2,500	2,697
TOTALS	147,070	147,100	156,766

1) US Bureau of the Census Reports, 1970
2) US Bureau of the Census Estimate
3) Montana Department of Community Affairs Projections medium series, county totals, 1977

TABLE 2 - 1970 census figures, 1976 census estimates and 1985 projections of Montana's population by County, North Central Montana

CENSUS POPULATION

SOUTHWESTERN

County	1970[1]	1976[2]	1985[3]
Beaverhead	8.187	8,200	9,095
Madison	5,014	5,400	5,556
Gallatin	32,505	37,400	44,058
Lewis & Clark	33,281	38,000	46,931
Broadwater	2,526	3,100	3,428
Jefferson	5,238	6,900	8,169
Meagher	2,122	2,200	2,216
Silver Bow	41,981	41,100	44,457
Deer Lodge	15,652	14,600	15,482
Powell	6,600	7,600	9,015
Granite	2,737	2,700	2,801
Park	11,197	12,600	14,590
TOTALS	167,040	179,800	205,798

1) US Bureau of the Census Reports, 1970
2) US Bureau of the Census Estimate
3) Montana Department of Community Affairs Projections medium series, county totals, 1977

TABLE 3 - 1970 census figures, 1976 census estimates and 1985 projections of Montana's population by County, Southwestern Montana

CENSUS POPULATION

SOUTH CENTRAL

County	1970 1)	1976 2)	1985 3)
Fergus	12,611	13,000	13,617
Petroleum	675	700	678
Judith Basin	2,667	2,700	2,745
Wheatland	2,529	2,500	1,923
Golden Valley	931	1,000	917
Musselshell	3,734	4,400	4,796
Sweet Grass	2,980	3,200	2,897
Stillwater	4,632	5,200	6,090
Carbon	7,080	8,300	8,889
Big Horn	19,057	10,600	12,161
Yellowstone	87,367	99,600	126,106
TOTALS	144,263	151,200	180,819

1) US Bureau of the Census Reports , 1970
2) US Bureau of the Census Estimate
3) Montana Department of Community Affairs Projections medium series, county totals, 1977

TABLE 4 - 1970 census figures, 1976 census estimates and 1985 projections of Montana's population by County, South Central Montana

CENSUS POPULATION

EASTERN

County	1970 1)	1976 2)	1985 3)
Valley	11,471	13,400	16,325
Daniels	3,083	3,200	3,143
Sheridan	5,779	5,500	5,144
Roosevelt	10,365	10,500	11,272
McCone	2,875	2,700	2,613
Garfield	1,796	1,800	1,784
Richland	9,837	10,300	12,093
Dawson	11,269	11,200	13,067
Wibaux	1,465	1,500	1,538
Rosebud	6,032	9,900	11,230
Treasure	1,069	1,300	1,236
Powder River	2,862	2,500	2,285
Custer	12,174	13,000	14,642
Prairie	1,752	1,700	1,915
Phillips	5,386	5,500	5,757
Fallon	4,050	3,900	4,326
Carter	1,956	1,800	1,882
TOTALS	93,221	99,700	110,252

1) US Bureau of the Census Reports, 1970
2) US Bureau of the Census Estimate
3) Montana Department of Community Affairs Projections medium series, county totals, 1977

TABLE 5 - 1970 census figures, 1976 census estimates and 1985 projections of Montana's population by County, Eastern Montana

TABLE 6

1975 & 1985 POPULATION PROJECTIONS BY AGE GROUP & COUNTY

NORTHWESTERN MONTANA

COUNTY	TOTAL POP.		AGE 0 - 4		AGE 5 - 17		AGE 18 - 64		AGE 65 +	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Flathead	44,600	56,402	3,611	4,679	11,754	12,791	24,640	33,309	4,595	5,623
Lake	17,100	19,876	1,425	1,603	4,434	4,551	8,906	11,210	2,335	2,512
Lincoln	16,500	16,589	1,433	1,285	4,587	3,634	9,334	10,108	1,146	1,562
Mineral	3,500	4,325	295	373	972	1,036	1,967	2,610	266	306
Missoula	64,600	78,171	5,106	6,240	14,317	14,404	40,199	51,370	4,978	6,157
Ravalli	18,400	21,142	1,321	1,630	4,523	4,483	9,728	11,886	2,828	3,143
Sanders	8,100	9,588	615	750	2,061	2,141	4,350	5,539	1,074	1,158
TOTALS	172,800	206,093	13,806	16,560	42,648	43,040	99,124	126,032	17,222	20,461

SOURCE: Montana Population Projections 1975 - 2000, Division of Research & Information Systems, Montana Department of Community Affairs, Aug. 1977 (Medium Series)

TABLE 7

1975 & 1985 POPULATION PROJECTIONS BY AGE GROUP & COUNTY

NORTH CENTRAL MONTANA

COUNTY	TOTAL POP.		AGE 0 - 4		AGE 5 - 17		AGE 18 - 64		AGE 65 +	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Blaine	6,800	7,191	617	631	1,827	1,639	3,603	4,191	753	730
Cascade	83,900	88,274	7,668	8,195	21,061	19,503	47,921	52,875	7,250	7,701
Choteau	6,300	6,491	496	551	1,540	1,314	3,503	3,845	761	781
Glacier	11,100	11,961	1,188	1,041	3,361	3,142	5,635	6,631	916	1,147
Hill	17,900	19,641	1,552	1,694	4,392	4,046	10,389	11,960	1,567	1,941
Liberty	2,500	2,697	190	228	671	562	1,421	1,636	218	271
Pondera	6,900	7,462	583	647	1,868	1,673	3,718	4,329	731	813
Teton	6,500	7,875	458	610	1,659	1,710	3,582	4,621	801	934
Toole	5,400	5,174	398	412	1,416	1,079	2,994	3,048	592	635
TOTALS	147,300	156,766	13,150	14,009	37,795	34,668	82,766	93,136	13,589	14,953

SOURCE: Montana Population Projections 1975 - 2000, Division of Research & Information Systems, Montana Department of Community Affairs, Aug. 1977 (Medium Series)

TABLE 8

1975 & 1985 POPULATION PROJECTIONS BY AGE GROUP & COUNTY

SOUTHWESTERN MONTANA

COUNTY	TOTAL POP.		AGE 0 - 4		AGE 5 - 17		AGE 18 - 64		AGE 65 +	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Beaverhead	8,300	9,095	699	868	1,849	1,798	4,862	5,485	890	944
Broadwater	2,800	3,428	206	287	732	771	1,524	2,002	338	368
Deer Lodge	15,200	15,482	1,144	1,245	3,482	2,991	8,630	9,071	1,944	2,175
Gallatin	37,300	44,058	2,851	3,527	7,128	7,342	24,304	29,510	3,017	3,679
Granite	2,700	2,801	206	236	638	564	1,528	1,600	328	401
Jefferson	6,700	8,169	539	684	1,724	1,869	3,844	4,948	593	668
Lewis & Clark	36,900	46,931	3,008	3,865	9,247	10,526	21,020	28,090	3,625	4,450
Madison	5,800	5,556	396	422	1,367	1,072	3,163	3,223	874	839
Meagher	2,300	2,216	174	173	527	429	1,327	1,326	272	288
Park	12,100	14,590	839	1,143	2,778	3,088	6,768	8,472	1,715	1,887
Powell	7,500	9,015	568	729	1,865	1,983	4,373	5,571	694	732
Silver Bow	43,000	44,457	3,422	3,581	10,618	9,335	23,847	26,555	5,113	4,986
TOTALS	180,600	205,798	14,052	16,760	41,955	41,768	105,190	125,853	19,403	21,417

SOURCE: Montana Population Projections 1975 - 2000 Division of Research & Information Systems, Montana Department of Community Affairs, Aug. 1977 (Medium Series)

TABLE 9

1975 & 1985 POPULATION PROJECTIONS BY AGE GROUP & COUNTY

SOUTH CENTRAL MONTANA

	TOTAL POP.		AGE 0 - 4		AGE 5 - 17		AGE 18 - 64		AGE 65 +	
COUNTY	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Big Horn	10,900	12,161	1,221	1,055	3,138	3,162	5,780	7,053	761	891
Carbon	7,800	8,889	495	672	1,734	1,796	4,213	5,010	1,358	1,411
Fergus	13,000	13,617	927	1,040	3,232	2,705	6,892	7,811	1,949	2,061
Golden Valley	900	917	59	70	188	160	510	534	143	153
Judith Basin	2,700	2,745	193	233	646	531	1,445	1,530	416	451
Musselshell	4,200	4,796	297	373	963	1,008	2,292	2,761	648	654
Petroleum	700	678	48	50	178	144	425	435	49	49
Stillwater	5,200	6,090	351	472	1,231	1,290	2,874	3,533	744	795
Sweet Grass	3,000	2,897	210	221	630	540	1,628	1,657	532	479
Wheatland	2,400	1,923	165	126	557	347	1,309	1,096	369	354
Yellowstone	97,300	126,106	7,936	10,456	24,383	28,134	56,961	76,914	8,020	10,602
TOTALS	148,100	180,819	11,902	14,768	36,880	39,817	111,697	108,334	14,989	17,900

SOURCE: Montana Population Projections 1975 - 2000, Division of Research & Information Systems, Montana Department of Community Affairs, Aug. 1977 (Medium Series)

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TABLE 10

1975 & 1985 POPULATION PROJECTIONS BY AGE GROUP & COUNTY

EASTERN MONTANA

COUNTY	TOTAL POP.		AGE 0 - 4		AGE 5 - 17		AGE 18 - 64		AGE 65 +	
	1975	1985	1975	1985	1975	1985	1975	1985	1975	1985
Carter	1,900	1,882	137	142	433	361	1,059	1,120	271	259
Custer	12,000	14,642	917	1,212	2,992	3,006	6,593	8,625	1,498	1,799
Daniels	3,100	3,143	214	259	729	600	1,699	1,808	458	476
Dawson	10,700	13,067	937	1,156	2,822	2,757	5,954	7,868	987	1,286
Fallon	4,000	4,326	342	390	1,049	915	2,206	2,549	403	472
Garfield	1,700	1,784	140	139	410	352	982	1,072	168	221
McCone	2,700	2,613	211	201	710	532	1,488	1,552	291	328
Phillips	5,400	5,757	435	471	1,417	1,243	2,830	3,302	718	741
Powder River	2,400	2,285	207	174	666	499	1,331	1,406	196	206
Prairie	1,900	1,915	123	140	408	352	1,077	1,092	292	331
Richland	9,900	12,093	797	998	2,596	2,585	5,407	7,094	1,110	1,41
Roosevelt	10,300	11,272	1,013	1,005	2,883	2,711	5,399	6,412	1,005	1,144
Rosebud	9,700	11,230	943	931	2,680	2,809	5,168	6,531	909	959
Sheridan	5,400	5,144	371	382	1,383	1,011	2,931	2,946	715	805
Treasure	1,200	1,236	94	105	318	272	653	721	135	138
Valley	13,200	16,325	1,160	1,391	3,700	3,935	7,297	9,858	1,043	1,141
Wibaux	1,500	1,538	121	135	386	319	806	892	187	192
TOTALS	97,000	110,252	8,162	9,231	25,582	24,259	52,880	64,848	10,386	11,914

SOURCE: Montana Population Projections 1975 - 2000, Division of Research & Information Systems, Montana Department of Community Affairs, Aug. 1977 (Medium Series)

TABLE 11

U.S. CENSUS COUNT OF MONTANA POPULATION, BY RACE AND COUNTY--1970

	ALL RACES	INDIAN		OTHER MINORITY	
	No.	No.	Pct.	No.	Pct.
Beaverhead	8187	31	0.4	18	0.2
Big Horn	10057	3917	38.9	132	1.3
Blaine	6727	1562	23.2	22	0.3
Broadwater	2526	22	0.9	1	0.03
Carbon	7080	29	0.4	29	0.4
Carter	1956	3	0.2	6	0.3
Cascade	81804	1509	1.8	1517	1.8
Chouteau	6473	153	2.4	14	0.2
Custer	12174	65	0.5	58	0.5
Daniels	3083	16	0.5	2	0.06
Dawson	11269	50	0.4	23	0.2
Deer Lodge	15652	240	1.5	188	1.2
Fallon	4050	13	0.3	4	0.09
Fergus	12611	65	0.5	43	0.3
Flathead	39460	327	0.8	147	0.4
Gallatin	32505	99	0.3	203	0.6
Garfield	1796	0	–	2	0.1
Glacier	10783	4576	42.4	40	0.4
Golden Valley	931	1	0.1	0	–
Granite	2737	20	0.7	1	0.03
Hill	17358	1607	9.3	154	0.9
Jefferson	5238	64	1.2	23	0.4
Judith Basin	2667	7	0.3	4	0.1
Lake	14445	2199	15.2	44	0.3
Lewis and Clark	33281	486	1.5	169	0.5
Liberty	2359	9	0.4	3	0.1
Lincoln	18063	209	1.2	39	0.2
Madison	2875	17	0.6	1	0.03
McCone	5014	78	1.6	14	0.3
Meagher	2122	12	0.6	13	0.6
Mineral	2958	16	0.5	6	0.2
Missoula	58263	660	1.1	282	0.5
Musselshell	3734	2	0.05	3	0.08
Park	11197	32	0.3	27	0.2
Petroleum	675	2	0.3	0	–
Phillips	5386	258	4.8	13	0.2
Pondera	6611	546	8.3	10	0.2
Powder River	2862	34	1.2	5	0.2
Powell	6660	98	1.5	23	0.3
Prairie	1752	13	0.7	0	–
Ravalli	14409	142	1.0	135	0.9
Richland	9837	40	0.4	20	0.2
Roosevelt	10365	3110	30.0	54	0.5
Rosebud	6032	1820	30.2	9	0.1
Sanders	7093	384	5.4	12	0.2
Sheridan	5779	42	0.7	7	0.1
Silver Bow	41983	359	0.9	147	0.3
Stillwater	4632	23	0.5	14	0.3
Sweet Grass	2980	2	0.06	0	–
Teton	6116	45	0.7	5	0.08
Toole	5839	63	1.1	5	0.08
Treasure	1069	1	0.09	4	0.4
Valley	11471	972	8.5	41	0.4
Wheatland	2529	17	0.7	5	0.2
Wibaux	1465	0	–	1	0.06
Yellowstone	87367	1063	1.2	539	0.6
Yellowstone Nat'l Park	64	0	--	0	–
TOTALS	694,409	27,130	3.9%	4,281	0.6%

Note: Other minority includes Negro, Japanese, Chinese, Filipino and other races, but does not include Spanish-surnamed or Spanish-speaking Americans.
Source: 1970 U.S. Census

services. Tables 6 through 10 show the estimated 1975 and projected 1985 populations for four age groups by county and subarea. These estimates were prepared by the Department of Community Affairs, State of Montana.

Finally, the largest racial minority in Montana is the Native American or American Indian constituting 3.9% of the population. Estimates of the number of Native Americans are presented in Table 11. These estimates were prepared for the Coordinator of Indian Affairs, Office of the Governor, Helena, Montana. No 1985 projections on the number of Native Americans in Montana are available.

3.0 Socio-economic Indicators

A number of socio-economic indicators are used to determine whether or not a particular community is eligible for public health service grants. Currently there are four designations used by the federal government to determine program eligibility. These are:

1) Critical Manpower shortage areas- uses various provider to population ratios (for physicians, dentists, optometrists, psychiatrists, podiatrists, pharmacists, and veterinarians).

2) Medical Shortage Areas - uses a combination of physician to population ratios, percent of population over 65, percent of population below the poverty level, and infant mortality rate.

3) High Infant Mortality Area - uses a 5 year infant mortality rate.

4) High Migrant Impact Area - uses the number of migrants who traditionally come to the area.

Figure 1 and 2 of the Primary Health Care Personnel Component show those areas currently designated as Critical Primary Care Manpower Shortage Areas and Medically underserved areas. Figure 1 of the Dental Personnel Component identify those counties designated as Critical Dental Shortage Areas. The following tables show by counties and subareas the statistics used in making these designations.

4.0 Geographical, Climatic and Transportation Description in Montana.

Geographic and Climatic conditions in a state such as Montana are important in planning health services because of their impact upon accessibility.

To emphasize the constraints under which health services

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SUBAREA & COUNTY	5 Year Infant Mortality Rate (1972-1976)	% Population over 65 (1975 est.)	% Population Below Poverty Level (1970)	Fertility Rate (1976)
NORTHWESTERN				
Lincoln	15.2	6.9	7.1	84.3
Flathead	18.9	10.3	12.9	83.6
Sanders	29.4	13.2	14.0	97.2
Lake	18.0	13.6	22.3	108.2
Mineral	19.3	7.6	8.4	90.5
Ravalli	16.9	15.4	18.6	74.8
Missoula	14.7	7.7	11.2	73.0

TABLE 12-Socio-Economic Indicators in the Counties of Northwestern Montana

SOURCES:

1) Five-Year Infant Mortality Rates--Bureau of Records & Statistics, State Department of Health & Environmental Sciences, Montana Vital Statistics, 1976.

2) Percentage Population Over 65--Montana Department of Community Affairs, Division of Research & Information Systems, Montana Population Projections, 1975-2000.

3) Percentage Population Below the Poverty Level--U. S. Bureau of the Census. Census of Population 1970 General Social & Economic Characteristics, Final Report, PC (1)-C 28 Montana.

4) Fertility Rate--Unpublished data from the Maternal & Child Health Bureau, State Department of Health & Environmental Sciences, 1976.

SUBAREA & COUNTY	5 Year Infant Mortality Rate (1972-1976)	% Population Over 65 (1975 est.)	% Population Below Poverty Level (1970)	Fertility Rate (1976)
NORTH CENTRAL				
Glacier	26.0	8.2	29.5	121.6
Toole	6.6	11.0	11.6	103.3
Pondera	14.8	10.6	18.2	94.1
Teton	11.4	12.3	12.0	107.7
Cascade	16.0	8.6	10.9	83.1
Chouteau	16.2	12.1	11.6	81.9
Hill	17.9	8.8	14.8	25.0
Blaine	11.2	11.1	31.4	95.1
Liberty	33.3	8.7	8.4	70.0

TABLE 13- Socio-Economic Indicators in the Counties of North Central Montana

SOURCES:

1) Five-Year Infant Mortality Rates--Bureau of Records & Statistics, State Department of Health & Environmental Sciences, Montana Vital Statistics, 1976.

2) Percentage Population Over 65--Montana Department of Community Affairs, Division of Research & Information Systems, Montana Population Projections, 1975-2000.

3) Percentage Population Below the Poverty Level--U.S. Bureau of the Census. Census of Population 1970 General Social & Economic Characteristics, Final Report, PC (1)-C 28 Montana.

4) Fertility Rate--Unpublished data from the Maternal & Child Health Bureau, State Department of Health & Environmental Sciences, 1976.

SUBAREA & COUNTY	5-Year Infant Mortality Rate (1972-1976)	% Population Over 65 (1975 est.)	% Population Below Poverty Level (1970)	Fertility Rate (1976)
SOUTHWESTERN				
Beaverhead	8.2	10.7	17.4	82.2
Madison	17.9	15.1	18.1	67.2
Gallatin	16.4	8.1	11.1	63.3
Lewis & Clark	20.2	9.8	8.8	73.5
Jefferson	34.5	8.8	13.4	66.9
Broadwater	34.9	12.1	23.1	39.6
Meagher	45.2	11.8	24.9	119.6
Silver Bow	24.6	11.9	11.4	85.9
Deer Lodge	10.3	12.8	10.8	81.0
Powell	31.6	9.2	9.5	76.2
Granite	26.9	12.1	15.8	91.7
Park	10.9	14.2	14.3	76.8

TABLE 14-Socio-Economic Indicators in the Counties of Southwestern Montana

SOURCES:

1) Five-Year Infant Mortality Rates--Bureau of Records & Statistics, State Department of Health & Environmental Sciences, Montana Vital Statistics, 1976.

2) Percentage Population Over 65--Montana Department of Community Affairs, Division of Research & Information Systems, Montana Population Projections, 1975-2000.

3) Percentage Population Below the Poverty Level--U.S. Bureau of the Census. Census of Population 1970 General Social & Economic Characteristics, Final Report, PC (1)-C 28 Montana.

4) Fertility Rate--Unpublished data from the Maternal & Child Health Bureau, State Department of Health & Environmental Sciences, 1976.

SUBAREA & COUNTY	5-Year Infant Mortality Rate (1972-1976)	% Population Over 65 (1975 est.)	% Population Below Poverty Level (1970)	Fertility Rate (1976)
SOUTH CENTRAL				
Fergus	10.7	15.0	14.9	79.8
Petroleum	0.0	7.0	17.8	53.1
Judith Basin	11.9	15.4	15.2	80.5
Wheatland	37.7	15.4	16.3	118.2
Golden Valley	14.1	15.9	11.7	62.2
Musselshell	26.4	15.4	19.2	124.8
Sweetgrass	4.8	17.7	23.6	87.7
Stillwater	9.2	14.3	13.7	93.0
Carbon	9.8	17.4	19.2	78.1
Big Horn	25.7	7.0	25.3	124.4
Yellowstone	16.4	8.2	12.1	79.8

TABLE 15-Socio-Economic Indicators in the Counties of South Central Montana

SOURCES:

1) Five-Year Infant Mortality Rates--Bureau of Records & Statistics, State Department of Health & Environmental Sciences, Montana Vital Statistics, 1976.

2) Percentage Population Over 65--Montana Department of Community Affairs, Division of Research & Information Systems, Montana Population Projections, 1975-2000.

3) Percentage Population Below the Poverty Level--U.S. Bureau of the Census. Census of Population 1970 General Social & Economic Characteristics, Final Report, PC (1)-C 28 Montana.

4) Fertility Rate--Unpublished data from the Maternal & Child Health Bureau, State Department of Health & Environmental Sciences, 1976.

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SUBAREA & COUNTY	5-Year Infant Mortality Rate (1972-1976)	% Population Over 65 (1975 est.)	% Population Below Poverty Level (1970)	Fertility Rate (1976)
EASTERN				
Valley	16.2	7.9	16.8	82.1
Daniels	12.6	14.8	10.1	99.1
Sheridan	14.0	13.2	11.4	87.7
Roosevelt	29.6	9.8	23.3	106.5
McCone	20.0	10.8	13.8	107.8
Garfield	6.4	9.9	17.3	102.6
Richland	8.4	11.2	13.8	103.3
Dawson	16.8	9.2	8.4	85.3
Wibaux	0.0	12.5	15.2	89.4
Rosebud	13.6	9.4	25.8	121.6
Treasure	27.0	11.2	22.8	102.9
Custer	17.8	12.5	11.6	98.1
Powder River	4.3	8.2	13.0	81.4
Prairie	7.1	15.4	19.1	86.4
Phillips	14.6	13.3	16.6	89.2
Fallon	15.4	10.1	12.6	82.5
Carter	15.2	14.3	17.5	99.3

TABLE 16-Socio-Economic Indicators in the Counties of Eastern Montana

SOURCES:

1) Five-Year Infant Mortality Rates--Bureau of Records & Statistics, State Department of Health & Environmental Sciences, Montana Vital Statistics, 1976.

2) Percentage Population Over 65--Montana Department of Community Affairs, Division of Research & Information Systems, Montana Population Projections, 1975-2000.

3) Percentage Population Below the Poverty Level--U.S. Bureau of the Census. Census of Population 1970 General Social & Economic Characteristics, Final Report, PC (1)-C 28 Montana.

4) Fertility Rate--Unpublished data from the Maternal & Child Health Bureau, State Department of Health & Environmental Sciences, 1976.

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are delivered in Montana and to help explain why they have developed as they have this section is presented.

First, the current population density (people per square mile) is presented in Figure 1. In comparison with other states Montana has an extremely small population density. Half of Montana's counties have less than 2.8 persons per square mile; three-fourths of the counties have less than 4.4 persons per square mile.

One of the reasons for this small population base lies in the topography of Montana. As shown in Figure 2, the topography varies from the mountain crests characteristic of the western third of the state, to the elevated plains, low mountains, and erosion valleys in the central portion, to the flat terrain evident in the east. Montana, by Spanish definition, means mountainous.

The Northern Rocky Mountain region largely dominates the topography in the western third of the state. Within this boundary and to the north, the mountain ranges and narrow river valleys parallel one another in a northwest-southeast direction. A structural feature running in a north-south direction, the Rocky Mountain trench, harbors Flathead Lake. This lake is one of the largest natural fresh water bodies in the United States. The southern portion of the mountainous area offers a random pattern of mountain ranges with generally wider separating valleys. Both the mountains and the valleys are higher in the south. Therefore, the elevation of the valley floors and mountain tops in the north and south are the same. Highways and railroads throughout western Montana generally follow valley floors and the lowest mountain passes.

Extremes in elevation levels are primarily evident in the western portion of Montana, ranging from 12,799 feet to only 1,800 feet above sea level. Although the mountains in Montana are less subject to earthquake activity than other geologically young and active mountains found in other states, the region has experienced a number of destructive earth tremors. The most recent earthquake occurred in the Madison River region of southwestern Montana in 1959 and caused a considerable amount of local physiographic change.

Within central Montana the topography consists of isolated low mountain groups; the Highwoods, Bearpaws, Little Rockies, Judith, and Big Snowys. In contrast to these mountains are flat or rolling plains surrounding them.

East of a line from the Little Rocky Mountains to the Pryors is a topography dominated by plains. Toward the northeast the elevations drop gradually until at the point where the Missouri River and Yellowstone River exit the state, the elevation is some 2,000 feet above sea level. The rivers in this region generally have narrow flood plains, and some have valleys measuring one hundred to two hundred feet in depth.

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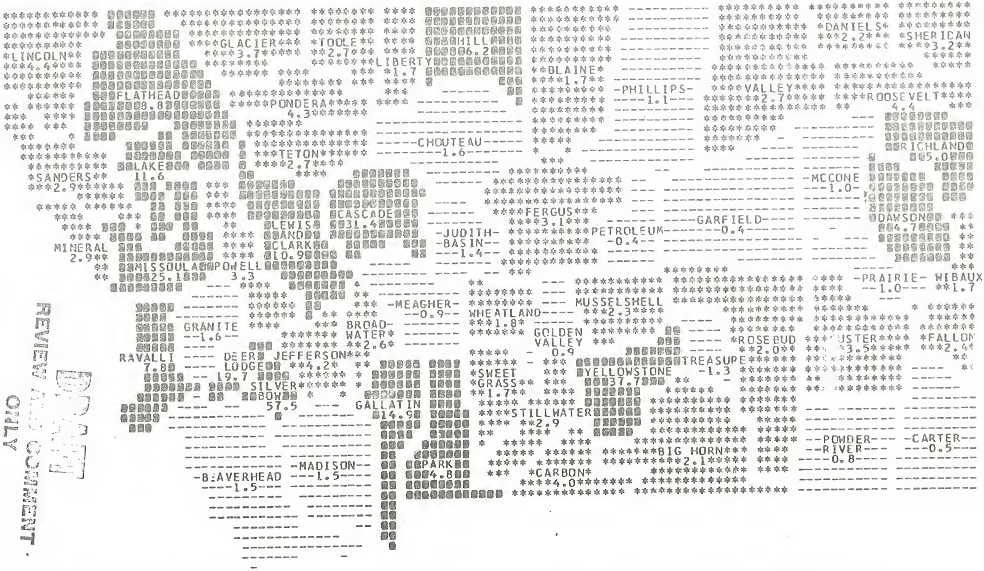
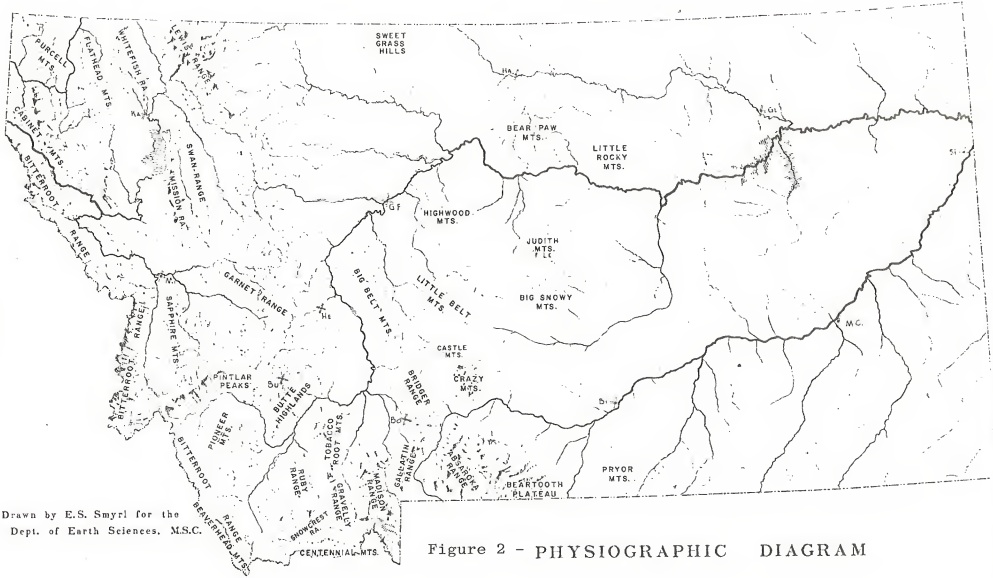
Figure 1

POPULATION DENSITY: MONTANA COUNTIES, 1976
(PERSONS PER SQUARE MILE)



SOURCE: BUREAU OF CENSUS AND BUREAU OF BUSINESS AND ECONOMIC RESEARCH, UNIVERISTY OF MONTANA.

---- 0.4 - 1.6 LOW QUARTILE
**** 1.7 - 2.7 MEDIUM LOW QUARTILE
**** 2.9 - 4.4 MEDIUM HIGH QUARTILE
■■■■ 4.7 - 57.5 HIGH QUARTILE



Drawn by E.S. Smyrl for the
Dept. of Earth Sciences, M.S.C.

Figure 2 - PHYSIOGRAPHIC DIAGRAM

The "badlands" are scoured landscapes with steep slopes, narrow divides, and closedly spaced gullies created by the erosional action of joining rivers. Continental Pleistocene glaciation across the northern portion of the plains, north of the Missouri River, has leveled the landscape.

In a state as large and varied in topography as Montana, various climatic controls such as latitide, distance from the ocean, and the presence of absence of mountains, interact in many different ways to contribute to a variety of climatic conditions. The northeast corner of Montana generally is the coldest due to intruding artic air from the north and northeast. The movement of artic air into Montana can cause drastic changes in the temperature. In 1916, the temperature at Browning went from 44 degrees F to minus 56 degrees F in a period of twenty four hours, a drop of 100 degrees (44^o to -56^o). The coldest temperature ever recorded in Montana, as well as in forty-eight conterminous states, was -70^o near Rodgers Pass in January, 1954. The eastern half of Montana is usually the warmest during the summer months, averaging more than 72^o F.

The average annual precipitation in Montana ranges from less than twelve inches in the south-central portion of the state to over one hundred inches in the mountains of the west. Overall, the State of Montana receives less than twenty inches of precipitation annually. The extreme western portion of Montana receives more than half of its precipitation in the winter, most of the rest of the state receives at least half of its precipitation during the summer, while northeastern Montana receives nearly eighty-five percent of its precipitation during the growing season.

The relationship of enviornmental characteristics and geographical features to the arrangement and delivery of health services becomes extremely important. The varied and harsh topographical and climatic conditions evident in Montana frequently make travel, especially during the winter months, difficult and at times impossible in certain regions. Many roads and highways are closed intermittently during heavy snowfall and blizzard conditions. Air travel too is often restricted during winter months because of poor visibility. Because of the travel restrictions imposed by natural causes, the patterns of utilization of health services are affected. In Montana, county and private roads equal or exceed the improved highways in terms of actual mileage. Highway density is the lowest in north-central and south-eastern Montana. Figure 3 shows the major highway routes in Montana. Montana's railroad network primarily serves east-west transcontinental traffic. Airlines link the major cities of Montana with medical centers outside the state. However, many small towns can only be reached by charter airlines.

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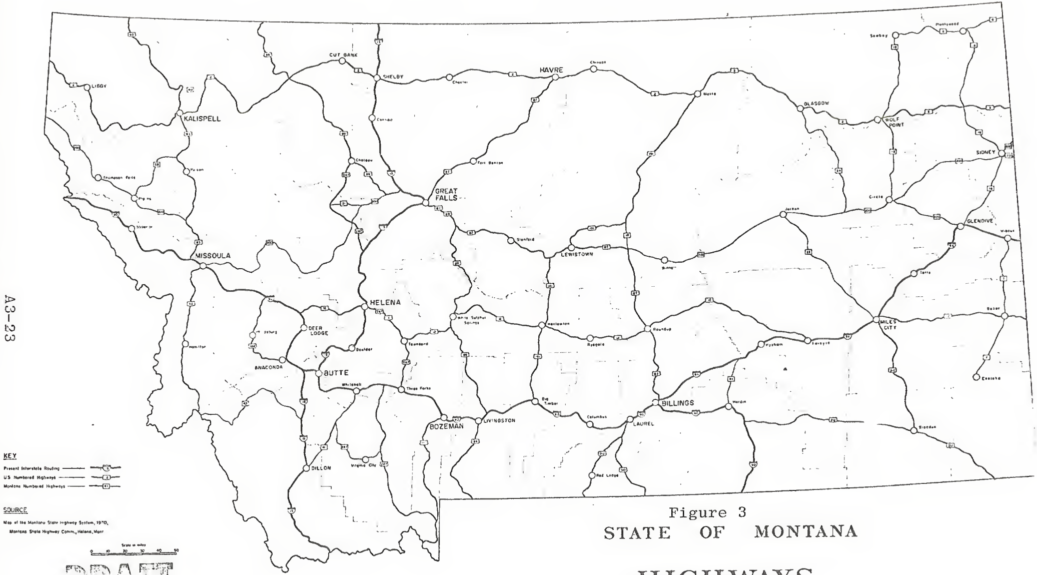

SOURCE

Map of the Montana State Highway System, 1970,
Montana State Highway Comm., Helena, Mont

Figure 3
STATE OF MONTANA

HIGHWAYS

5.0 Economic Characteristics

Employment and family income within a health service area are important factors to be considered when studying the utilization rates of health services within a community. While higher income groups typically have utilized health services more frequently than lower income groups, programs that help finance medical care for lower income groups have somewhat removed the "consumption gap". While hospital admissions may be affected by these financing programs, the use of other health care services is largely determined by income. Higher income groups typically use more specialists, more preventive, and more dental services.

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Employment Characteristics by County and Subarea - Selected Years

Table 17

COUNTY	PER CAPITA PERSONAL INCOME RESIDENCE ADJUSTED DOLLARS 1959	1965	1970	1974	PERCENT IN LABOR FORCE 1970 Female 16 yrs & over	Male 18-24 years	Male 65 yrs & over	EMPLOYED PERSONS 1970 % in manufac. indust.	% in whte-clr. occupatn.	% governmt. workers	CIVILIAN LABOR FORCE 1970 % un-employed	1973 % un-employed
Northwestern												
Flathead	2047	2401	3181	4506	33.2	72.3	14.7	23.0	43.3	15.8	9.8	6.4
Lake	1437	1961	2530	3462	34.3	65.7	25.0	12.1	38.0	18.9	6.5	6.1
Lincoln	2262	2645	3129	3897	30.3	85.0	21.4	27.8	34.1	15.3	10.3	9.9
Mineral	1409	2021	2788	3785	43.5	73.8	14.9	24.7	35.5	31.7	13.9	5.6
Missoula	2157	2626	3324	4548	42.2	54.0	22.4	12.1	52.5	24.4	7.6	5.8
Ravalli	1719	1989	2782	3369	32.6	74.0	22.8	13.0	38.8	23.0	7.9	7.7
Sanders	1702	2237	2608	4020	32.1	78.7	18.1	21.6	36.3	25.4	11.9	7.3
Southwestern												
Beaverhead	2286	2239	3138	4070	40.6	64.8	29.2	4.6	39.9	24.6	5.7	2.2
Broadwater	1979	2479	3110	4673	35.8	84.4	15.1	10.5	44.3	18.0	3.6	4.4
Deer Lodge	1609	2250	2997	4227	34.9	74.9	8.7	33.8	27.6	28.3	7.0	6.8
Callatin	1896	2059	3194	4622	40.4	46.5	30.2	6.4	52.6	34.5	5.4	3.3
Granite	1950	2308	2533	3362	26.7	57.4	20.0	19.4	27.8	21.1	5.[illegible]	4.8
Jefferson	1706	1764	2622	3226	37.3	46.8	28.3	4.7	38.3	41.6	4.[illegible]	6.2
Lewis & Clark	2365	2878	4085	5349	51.5	74.2	30.0	5.8	62.3	32.9	4.[illegible]	4.6
Madison	1978	2607	3081	3102	40.0	69.5	29.2	1.7	25.1	21.0	5.7	3.2
Meagher	2336	2814	3361	4242	33.6	81.7	52.8	19.7	21.1	15.7	6.7	2.4
Park					40.1	78.5	21.4	5.0	37.7	15.0	5.6	4.2
Powell	1956	2268	2973	4089	38.7	58.8	20.9	13.2	34.0	28.3	4.7	5.1
Silver Bow	2098	2756	3476	4866	36.8	77.0	18.0	6.3	46.4	15.8	6.1	7.3
North Central												
Blaine	1686	2035	3479	5010	34.5	70.7	29.2	2.7	34.3	21.7	10.6	4.2
Cascade	2288	2638	3755	4947	40.2	88.7	17.6	12.3	52.3	18.9	6.5	5.4
Chouteau	2673	3539	5443	11878	29.0	81.9	48.5	2.8	30.6	18.2	1.9	2.5
Glacier	1622	1893	2893	4572	37.7	66.0	21.5	2.8	44.3	26.6	12.6	6.3
Hill	2108	2412	3812	6333	40.8	62.9	29.0	3.5	45.1	21.3	4.3	3.8
Liberty	3299	3009	6966	8669	37.1	84.9	22.0	1.4	38.9	25.3	0.5	2.4
Pondera	1932	2598	4454	6206	34.4	82.3	37.5	3.1	38.7	17.6	3.2	4.6
Teton	1950	2787	4337	5406	29.5	88.8	33.1	4.2	33.0	16.7	4.2	3.4
Toole	2016	2678	4922	7679	35.6	76.7	31.5	4.2	41.1	22.5	3.6	3.8

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Table 17 (cont.)

COUNTY	PER CAPITA PERSONAL INCOME RESIDENCE ADJUSTED DOLLARS 1959	1965	1970	1974	PERCENT IN LABOR FORCE 1970 Female 16 yrs & over	Male 18-24 years	Male 65 yrs & over	EMPLOYED PERSONS 1970 % in manufac. indust.	% in whte-clr. occupatn.	% governmt. workers	CIVILIAN LABOR FORCE 1970 % un-employed	1973 % un-employed
South Central												
Big Horn	1676	1826	3132	3542	31.4	75.7	32.1	10.0	38.6	29.1	4.6	6.1
Carbon	1606	1924	3472	4363	30.1	67.2	16.8	5.0	36.5	16.6	5.2	4.0
Fergus	1922	2192	3452	5060	36.0	85.5	22.6	5.0	42.9	17.1	4.9	3.0
Golden Valley	1991	2341	3407	3616	45.8	41.5	53.4	---	23.0	23.0	4.7	4.9
Judith Basin	2279	2713	4157	5801	28.4	77.8	36.7	0.5	21.5	18.8	2.8	1.8
Musselshell	1573	2170	3268	3877	37.2	78.9	29.5	3.8	27.4	14.0	7.4	4.4
Petroleum	2090	2362	3729	2262	26.4	*	*	---	27.2	21.8	---	2.1
Stillwater	1842	2188	3457	4297	26.9	69.8	25.0	6.0	39.0	14.7	5.4	2.6
Sweet Grass	1730	2211	3477	3967	40.3	82.3	33.1	3.3	35.2	14.9	2.1	2.4
Wheatland	1880	2514	3613	4513	38.1	75.5	50.9	2.7	35.6	16.2	1.5	2.0
Yellowstone	2340	2669	3751	5313	42.2	70.1	24.1	8.7	53.8	14.5	5.8	3.7
Eastern												
Carter	2402	2703	3814	4846	33.8	84.2	62.0	2.9	24.3	21.6	2.4	1.9
Custer	2003	2448	3576	4588	42.2	66.3	26.1	2.7	48.7	21.9	2.7	3.6
Daniels	1509	3399	4637	10259	31.9	93.3	15.8	0.6	32.8	16.4	0.4	2.4
Dawson	1553	2241	3343	5692	39.1	79.5	31.7	3.9	39.7	15.1	3.[illegible]	2.8
Fallon	1667	1967	3159	5061	33.9	89.0	31.4	1.4	33.8	13.6	5.[illegible]	1.9
Garfield	2138	2740	3977	5218	40.3	100.0	54.8	2.5	28.7	19.4	2.3	1.5
McCone	1307	2753	3356	10399	27.5	81.8	50.3	1.0	31.7	15.5	2.3	2.1
Phillips	1726	2279	3963	5788	38.7	81.1	18.2	1.9	34.9	19.9	4.3	3.6
Powder River	2306	2280	2989	5529	38.3	78.9	38.1	---	23.0	9.7	2.9	2.6
Prairie	1782	2329	3083	5401	34.3	92.9	38.4	1.5	27.0	18.9	1.4	1.3
Richland	1384	2008	3363	5205	32.6	83.8	20.3	7.8	36.1	15.8	4.4	2.3
Roosevelt	1179	1992	3182	6331	39.2	81.7	16.7	3.7	42.7	26.8	8.8	3.7
Rosebud	1828	2278	3266	3911	43.0	85.8	32.6	7.8	35.7	24.7	4.6	4.1
Sheridan	1574	2566	3477	9781	25.6	67.7	25.7	1.3	27.4	15.8	3.0	1.6
Treasure	2195	3020	4371	4475	35.0	*	56.9	1.6	36.3	27.9	1.3	2.7
Valley	1531	2084	3995	6172	41.7	80.9	36.0	11.2	39.3	20.7	5.1	7.3
Wibaux	1799	2570	3740	5495	24.0	87.0	31.1	2.8	30.4	22.0	0.9	2.0
Montana Summary					38.6	69.7	24.2	9.7	45.3	20.8	6.2	

6.0 Health Status Indicators

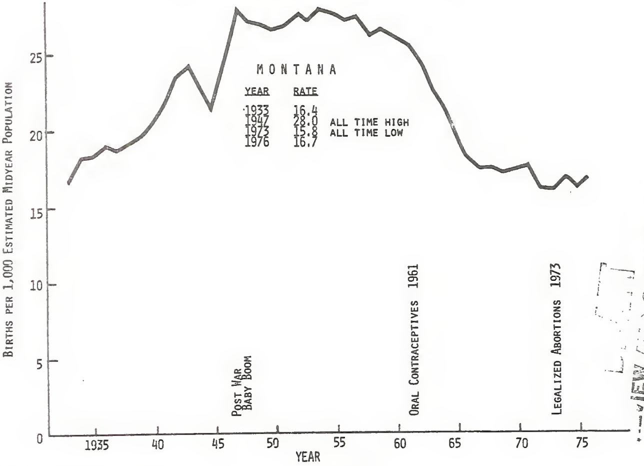
This section is intended to present an overview of the various indicators of health status currently available in Montana. Most of the statistics and narrative in this section have been taken from the Bureau of Records and Statistics' Report, Montana Vital Statistics, 1976.1)

Chapter 7 presents more detailed information of three health problems in Montana and discusses various strategies which might be implemented to reduce these problems.

6.1 Births

During 1976, there were 12,605 births to residents of Montana. This is a crude birth rate of 16.7 per thousand residents compared to the U.S. crude birth rate (provisional) of 14.7 per thousand for the same year. After reaching an all-time recorded low of 15.8 births per thousand in 1973, Montana's birth rate has fluctuated between 15.8 and 17.4 births per thousand since 1971; in comparison, the U.S. crude birth rate has been annually declining since the late 1960's.

Figure 4 - CRUDE BIRTH RATES: MONTANA, 1933-76



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In 1976, Montana experienced a natural increase of 5,872 persons which resulted from the number of births (12,605) exceeding deaths (6,733).

Currently there is a trend toward smaller families: in 1965, 68.9 percent of the children born were the first, second, or third child in the family; in 1976, 89.0 percent of the children born were the first, second, or third child. These figures and the low crude birth rate show that Montana couples are having fewer children and smaller families. Although the 1970 census showed that 3.9 percent of Montana's population was Indian, 9.4 percent of all births (1,184) in 1976 were to Indian mothers.

National statistics indicate that the age of the mother at childbirth influences her pregnancy and the health of her child. Mothers and babies born to mothers giving birth very early or very late in their childbearing years experience more problems. Montana statistics, however, do not reflect this situation. Mothers under age 20 and over age 34 constituted 19.5 percent of all mothers in 1976. Mothers in these age groups experienced 19.9 percent of the complications during pregnancy, 19.9 percent of the complications of labor and had 19.5 percent of the babies born with congenital malformations. Thus, there is no indication that Montana mothers in these age groups or their babies have a disproportionately larger share of pregnancy or birth-related problems.

Babies which are too small or too immature may be unable to take over the vital life functions of breathing, metabolism, excretion, and body temperature control. One in every 13 babies (7.7 percent) born in the United States is born too early (less than 37 weeks gestation), too small (weighing less than 5½ pounds), or both. In Montana, 1,219 (10.0 percent) of 12,232 babies had reported gestation periods of less than 37 weeks and 824 (6.7 percent) of the 12,355 babies born in Montana were under 5½ pounds.

Several maternal characteristics are associated with low-birth-weight infants. Low-birth-weight infants are more often born to mothers who:

- are younger than 16
- have previously given birth to a low-birth-weight infant
- are suffering from a chronic condition
- are undernourished
- smoke cigarettes
- are alcoholics

- . are addicted to narcotics
- . have not had regular prenatal care
- . have certain genetic disorders.

Nationally, statistics indicate that mothers who fall into more than one of these categories run an even greater risk of having low-birth-weight babies. For example, teen-agers are less likely to have regular prenatal care during pregnancy and they are also less likely to have a balanced diet. One in every four low-birth-weight babies is born to a teen-aged mother and mothers under age 16 have the greatest risk of giving birth to premature infants.

In Montana, one in every five low-birth-weight infants was born to a teen-aged mother' 15.45% (1,948) of all mothers were under 20 years of age but they gave birth to 20.62% (173) of the low-birth-weight infants.

In 1976, half of the Montana mothers who sought prenatal care did so by the time they had been pregnant three months. Mothers of legitimate children sought care about a month sooner than mothers of out-of-wedlock children, half of whom sought care by the time they had been pregnant four months. Less than 1% of Montana mothers received no prenatal care, but 4.72% of the mothers of children born out-of-wedlock received no prenatal care.

Nationally, mothers under age 20 or over age 34 generally seek prenatal care later in pregnancy. This is also the case in Montana.

In 1976, 3.9% (487) of the mothers experienced complications during pregnancy. Toxemia and complications resulting from repeated Caesarean sections accounted for more than half of the complications of labor. Malpresentation of the fetus was the most common complication, followed by abnormalities of the placenta and the umbilical cord. In 1976, 169 babies were born with congenital malformations.

6.2 Deaths

The total number of deaths and the crude death rate were higher in 1976 than in 1975 and 1974. However, if the rates are standardized for age, the 1976 adjusted rate surpassed only 1975. The age-adjusted rates are shown below.

Year	Age-Adjusted Death Rate per 100,000 population
1974	875.4
1975	853.1
1976	864.4

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Table 18 - 1976 Births by County of Residence

COUNTY	LIVE BIRTHS			
	TOTAL	WHITE*	INDIAN	OTHER
MONTANA, TOTAL	42,605	11,252	1,184	[illegible]
BEAVERHEAD	134	125	8	1
BIG HORN	263	98	165	-
BLAINE	123	51	72	-
BROADWATER	47	46	1	-
CARBON	100	98	-	2
CARTER	29	29	-	-
CASCADE	1,468	1,311	88	69
CHOUTEAU	92	90	2	-
CUSTER	241	236	4	1
DANIELS	53	51	-	2
DAWSON	194	190	4	-
DEER LODGE	201	197	2	2
FALLON	63	61	2	-
FERGUS	182	176	4	2
FLATHEAD	741	709	26	6
GALLATIN	567	557	5	5
GARFIELD	32	31	1	-
GLACIER	255	90	163	2
GOLDEN VALLEY	11	11	-	-
GRANITE	43	43	-	-
HILL	335	251	78	6
JEFFERSON	96	94	2	-
JUDITH BASIN	36	36	-	-
LAKE	323	201	120	2
LEWIS & CLARK	577	557	17	3
LIBERTY	35	35	-	-
LINCOLN	283	272	8	3
MCCONE	51	51	-	-
MADISON	61	61	-	-
MEAGHER	44	44	-	-
MINERAL	62	60	1	1
MISSOULA	1,096	1,035	49	12
MUSSELSHELL	85	80	4	1
PARK	175	172	1	2
PETROLEUM	6	5	-	1
PHILLIPS	87	77	10	-
PONDERA	121	106	15	-
POWDER RIVER	43	42	1	-
POWELL	103	96	4	3
PRAIRIE	26	24	1	1
RAVALLI	241	234	4	3
RICHLAND	201	193	7	1
ROOSEVELT	211	95	115	1
ROSEBUD	226	154	68	4
SANDERS	138	119	18	1
SHERIDAN	82	79	3	-
SILVER BOW	628	596	25	7
STILLWATER	82	82	-	-
SWEET GRASS	45	45	-	-
TETON	108	107	-	1
TOOLE	100	97	3	-
TREASURE	25	25	-	-
VALLEY	214	186	24	4
WHEATLAND	48	47	-	1
WIBAUX	22	22	-	-
YELLOWSTONE	1,750	1,672	59	19

* WHITE INCLUDES MEXICAN.

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Table 19

DEATHS FROM SELECTED ACCIDENTS BY AGE
MONTANA, 1976

BY PLACE OF OCCURRENCE. EACH PERCENT HAS BEEN INDEPENDENTLY ROUNDED TO THE NEAREST ONE-TENTH OF ONE PERCENT; HENCE, THE SUMS OF PARTS MAY DIFFER SLIGHTLY FROM THE TOTALS SHOWN.

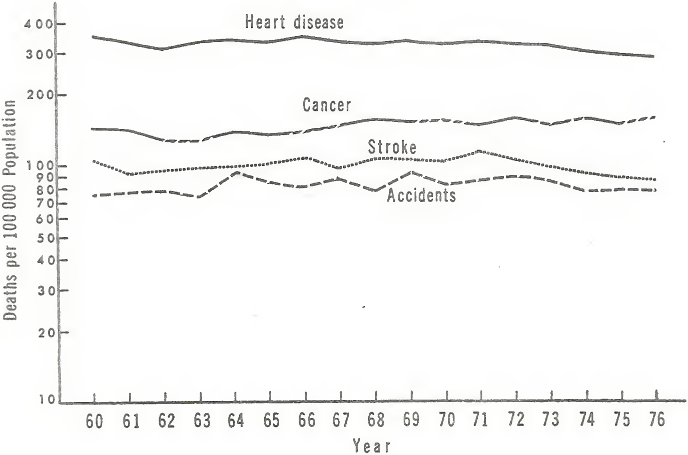
EIGHTH REVISION INTERNATIONAL LIST NUMBER	ACCIDENTAL CAUSE OF DEATH	TOTAL ALL AGES	UNDER 1 YEAR	1-4	5-9	10-14	15-19	20-24	25-34	35-44	45-54	55-64	65 AND OVER	AGE NOT STATED
		NUMBER												
	TOTAL DEATHS, ALL CAUSES	6,632	193	41	25	31	120	119	183	206	445	988	4,281	-
	ACCIDENTAL DEATHS, TOTAL.	594	5	25	14	23	86	75	102	58	47	47	112	-
810-823	MOTOR VEHICLE, TOTAL	308	-	8	8	5	56	58	64	33	26	22	28	-
800-807,825-949	OTHER ACCIDENTS, TOTAL	286	5	17	6	18	30	17	38	25	21	25	84	-
800-807,825-845	OTHER TRANSPORTATION, TOTAL . . .	36	-	-	1	1	3	5	8	8	3	4	3	-
840-845	AIRCRAFT.	20	-	-	-	-	1	2	5	5	3	2	2	-
800-807,825-838	OTHER	16	-	-	1	1	2	3	3	3	-	2	1	-
850-869	POISONING BY SOLIDS AND LIQUIDS, TOTAL. .	13	-	1	1	1	1	4	-	-	3	-	2	-
850-859	DRUGS AND MEDICATIONS.	8	-	-	-	1	-	3	-	-	2	-	2	-
860-869	OTHER	5	-	1	1	-	1	1	-	-	1	-	-	-
870-877	POISONING BY GASES, TOTAL	14	-	-	-	-	4	-	3	1	2	1	3	-
870-872	UTILITY GAS	4	-	-	-	-	1	-	-	-	1	1	1	-
873-877	OTHER	10	-	-	-	-	3	-	3	1	1	-	2	-
880-887	FALLS, TOTAL.	77	-	1	-	-	7	-	4	3	3	7	52	-
880	ON OR FROM STAIRS	10	-	1	-	-	-	-	1	1	-	2	5	-
881	ON OR FROM LADDER	3	-	-	-	-	-	-	-	2		-	1	-
882	FROM OR OUT OF BUILDING	2	-	-	-	-	2	-	-	-		-	-	-
883	INTO OPENING IN SURFACE	-	-	-	-	-	-	-	-	-		-	-	-
884	ONE LEVEL TO ANOTHER.	12	-	-	-	-	5	-	3	-		-	4	-
885-886	SAME LEVEL.	3	-	-	-	-	-	-	-	-	-	1	2	-
887	UNSPECIFIED	47	-	-	-	-	-	-	-	-	3	4	40	-
890-899	FIRE AND FLAMES, TOTAL.	20	1	5	-	-	1	-	2	1	1	3	6	-
923	EXPLOSIONS, TOTAL	1	-	-	-	-	1	-	-	-	-	-	-	-
922	INJURY BY FIREARMS, TOTAL	21	-	1	-	6	4	-	8	2	-	-	2	-
910	DROWNING, TOTAL	32	-	6	1	6	7	3	1	1	3	2	-	-
916	STRUCK BY FALLING OBJECT, TOTAL .	8	-	-	1	-	-	-	1	2	2	2		
900-909,911-915 917-921,924-949	OTHER ACCIDENTS, TOTAL.	64	4	3	2	4	2	5	11	7	4	6	16	-
		PERCENT OF DEATHS FROM CAUSES												
	ACCIDENTAL DEATHS, TOTAL.	9.0	2.6	61.0	56.0	74.2	71.7	63.0	55.7	28.2	10.6	4.8	2.6	0.0
810-823	MOTOR VEHICLE, TOTAL	4.6	0.0	19.5	32.0	16.1	46.7	48.7	35.0	16.0	5.8	2.2	0.7	0.0
800-807,825-949	OTHER ACCIDENTS, TOTAL	4.3	2.6	41.5	24.0	58.1	25.0	14.3	20.8	12.1	4.7	2.5	2.0	0.0

The provisional crude death rate for the United States as a whole was about the same as that for Montana in 1976, 890 per hundred thousand population.

Figure 5

RATES FOR THE FOUR LEADING CAUSES OF DEATH

Montana,1960-76



Heart Disease - There were 2,178 deaths in Montana in 1976 caused by diseases of the heart. The prominent cause was ischemic heart disease, accounting for 80.6% of these deaths; the acute form of this cause, myocardial infarction, was responsible for over half of these deaths (54.8%). Both crude and age-adjusted rates of deaths from heart disease appear to be going down, and the same pattern can be observed nationwide. In the age group 35-44, heart disease has dropped to the third leading cause of death, and is now almost half what it was in 1972.

Cancer - An all-time high for Montana was hit by the 1,191 deaths due to malignant carcinoma in 1976. However, the age-adjusted rate for 1976, 149.6 per 100,000 population, was lower than the 1972 age-adjusted rate, 148.5 per 100,000. Median age of death due to this cause in 1976 was 69 years.

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Deaths from cancer of the bronchus, trachea and lung have increased fairly steadily in recent years. Among men dying of cancer, more have lung cancer (28.8%) than in any other category. Only 11.4% of women dying of cancer were in this category, but this is a 137.5% increase since 1968. This increase could reflect the increase of smoking among women. Cancer of the breast is still the leading cause among female cancer deaths at 21.1%.

Stroke - Diseases of the cerebrovascular system, or stroke, are most prevalent in the very old: half of the 637 persons dying of these causes in 1976 were more than 81 years old.

A pattern of decrease in stroke death rates has emerged in the past five years, both in the crude and age-adjusted rates.

Table 20

CRUDE AND AGE-ADJUSTED RATES PER 100,000 POPULATION FOR STROKE:

Total and Age Group 65+

Year	65+ age-specific	65+ age-adjusted	Total crude	Total age-adjusted
1972	915.49	887.59	103.3	100.7
1973	869.01	842.53	98.6	96.2
1974	802.74	778.27	91.2	88.4
1975	765.33	742.01	88.2	84.7
1976	711.69	690.00	84.6	79.9

Accidents - While half of the deaths due to heart disease, cancer and stroke occur in people over 65, accidents strike among the relatively young. Median age of persons dying due to accidents was 30.9 years in 1976. Accidents accounted for 57.4% of deaths in the age group 1-4. Two-thirds of deaths in the age group 5-14 were categorized as accidental.

Motor vehicle accidents caused 50.3% of all accidental deaths, and the median age at death of victims was 26.5 years. Possibly reflecting reduced speed limits, the crude death rate due to motor vehicle accidents has decreased from a high of 50.1 per 100,000 population in 1972 to 38.6 per hundred thousand in 1976.

Influenza - Pneumonia - The highest number of deaths, 719, reported in a single month since Montana has collected vital statistics, occurred in March of 1976. This undoubtedly reflected an influenza outbreak shortly before and during that month. The average monthly number of deaths in 1976 was 561. The only other month in which more than 600 deaths occurred was October with 601.

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Total deaths specifically attributed to pneumonia and influenza for 1976 were 302. This compares to 202 deaths in 1975. The largest single increase was due to death from influenza with 17 occurrences in 1975 and 95 in 1976.

Table 21

Total Deaths from Pneumonia & Influenza: 1975-1976

	1976	1975
Total	302	202
Pneumonia	207	185
Influenza	95	17

Deaths from pneumonia and influenza are discussed together because pneumonia is a frequent complication of influenza. In some instances the attending physician may certify the death as due to pneumonia, while in other cases, the death may be assigned to influenza, the condition which initiated the chain of events leading to death.

The impact of influenza on mortality in Montana is further complicated by the fact that persons with a chronic condition are especially susceptible and the insult of influenza in addition to their pre-existing condition may combine to cause death. In such instances, the physician may select the pre-existing chronic condition as the underlying cause-of-death, or he may choose to certify the death as due to influenza. For this reason, total deaths are carefully monitored when assessing the effect of influenza on the population.

Suicide - There were 129 suicides in Montana in 1976, a crude rate of 17.1 per hundred thousand population. This is a high among rates for the last ten years, but may only reflect better reporting. When suicide and the category "unknown whether accidentally or purposely inflicted" are combined, the rate for 1976 does not differ considerably from rates for other recent years:

1974	20.5 per hundred thousand population
1975	19.3 per hundred thousand population
1976	19.4 per hundred thousand population

It is commonly thought that a higher percentage of Indians than whites commit suicide. In 1976, 1.9 percent of all deaths were categorized as suicide, while 2.5 percent (7) of Indian deaths were classed as purposely self-inflicted.

Cirrhosis Of Liver - This cause of death appears in 1976 for the first time among Montana's 10 most frequent causes of death. Alcoholic cirrhosis of the liver accounts for 63 of 119 cirrhosis deaths. If all natural causes mentioning alcoholism are added to all cirrhosis deaths, the rank would be seventh among 1976 deaths.

Most cirrhosis deaths (64.7%) occurred among males. Although only 4.2% of all Montana deaths were Indians, 20.2% of all cirrhosis deaths were Indians.

Median age at death due to cirrhosis fluctuates from year to year, perhaps due to the small numbers involved. However, the median age at death due to alcoholic cirrhosis is consistently younger than that due to cirrhosis without mention of alcoholism.

Emphysema, Bronchitis, Asthma - There appears to be a substantial drop in deaths listed as due to emphysema, bronchitis and asthma from 1975 (147 deaths, a rate of 19.7 per hundred thousand population) to 1976 (120, a rate of 15.9 per hundred thousand). However, this may be discounted by the rise in deaths listed as due to "chronic obstructive pulmonary disease," COPD, which, it seems, certifiers are more and more apt to use in reporting any chronic respiratory disease.

Infant Deaths - The infant mortality rate in 1976 was 16.6 per thousand live births. This rate is higher than in 1975, when the rate was the lowest ever. The increase for 1976 is concentrated in the categories of infectious disease and sudden-infant-death syndrome (SID). However, the leading group of causes is still that of "birth injury, difficult labor and other hypoxic and anoxic conditions."

Neonatal deaths increased from 10.7 per thousand live births in 1975 to 11.7 per thousand in 1976. However, fetal deaths were fewer, and thus the total perinatal mortality rate remained at 19.8 deaths per thousand live births.

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APPENDIX 4

GLOSSARY OF SELECTED HEALTH PLANNING TERMS

A-95 AGENCY - The Agency designated to implement the review and comment procedures promulgated by the Office of Management and Budget Circular A-95. In Montana, the State Clearinghouse is in the Office of Budget and Program Planning.

ACCEPTABILITY - The acceptability of health care services is a measure of consumers' satisfaction with the services they receive, the manner in which the services are delivered, the ease with which services are obtained, and their confidence in the providers of the services. It has been suggested that the only way to adequately measure an individual's satisfaction with the personal health care system is to ask him/her a series of direct questions.

The individual appraises such things as the cost, quality, results, convenience of care; it also takes into account an individual's cultural and religious attitudes. Provider attitudes should also be taken into consideration.

Acceptability - this characteristic becomes a consideration after (1) the services are *available*, and (2) every effort has been made to render them *accessible*. Then, the question arises as to whether people *like* the manner in which they receive care. Acceptability refers to a consumer's *perceived* or *felt* needs for health care services. Measurement of acceptability is extremely difficult because individual (1) perceptions; (2) opinions; and (3) motivations are involved.

ACCESSIBILITY - Accessibility to health care services refers to the degree to which the system inhibits or facilitates the ability of an individual to gain entry and to receive services. (Thus, accessibility includes geographic, architectural, transportation, social, cultural, time, financial, and administrative considerations.) Accessibility is also a function of the availability of health services, and their acceptability.

Accessibility is concerned with whether people can use services, given that they are available.

ACCREDITATION - Recognition by an organization that an institution or individual meets specific predetermined standards.

ACUTE CARE - Medical treatment for a short-term or episodic disease.

ADMISSION RATE - A measure of institution or facility use indicating the number of persons admitted during a specified time period and standardized to a specific population size.

ADVANCED LIFE SUPPORT (ALS) - The more advanced of two levels of emergency medical care, ALS systems provide comprehensive care in both the pre-hospital and in-hospital phases of EMS. An ALS system incorporates more specialized and advanced personnel, equipment, and techniques than are found in the first level of care---Basic Life Support.

AFFECTED PARTIES - The person whose proposal is being reviewed, members of the public who are to be served by the proposed new institutional health services; health care facilities and health maintenance organizations located in the health service area in which the service is proposed to be offered or developed; and any agency which establishes rates or standards for health care facilities.

AFFILLIATION - An agreement between institutions providing for the referral or transfer of patients, and/or sharing or consultation of services.

ALLIED HEALTH MANPOWER - Is defined broadly to include the professional, technical and supportive workers in patient services, administration, teaching and research, who engage in activities that support, complement or supplement the functions of physicians, dentists and registered nurses. In addition, all personnel engaged in organized functions (e.g. environmental engineers) are included in the Allied Health pool.

ALLOPATHIC MEDICINE - The medical philosophy ascribed to by the majority of physicians in which treatment of disease is accomplished by medical intervention. See also Osteopathic medicine.

AMBULATORY CARE - All health services provided on a walk-in or outpatient basis, in contrast to inpatient care.

AMBULATORY SURGICAL FACILITY - A facility which may or may not be a part of a hospital, which provides surgical treatment to patients not requiring hospitalization.

ANCILLARY SERVICES - Hospital services other than room and board and nursing professional services. Includes diagnostic radiology, drugs, and laboratory services.

ANGINA PECTORIS - A sudden or reaccuring chest pain, with a feeling of suffocation and impending death due, most often to a lack of oxygen to the muscles of the heart.

ANNUAL IMPLEMENTATION PLAN - A document that describes short-range (12 months) objectives which will achieve the goals of the Health Systems Plan.

APPLICANT - An applicant is a person, organization or agency which submits a proposal to MHSA for review in accordance with any of its mandated review functions.

APPROVED ALCOHOL PROGRAM (approved public treatment facility) - A treatment agency operating under the direction and control of the Department of Institutions or providing treatment as set forth by R.C.M. Title 80, Chapter 27, through a contract with the Department of Institutions and approved under 80-2713.

AREA HEALTH SERVICE DEVELOPMENT FUND - Funds available to Health Systems Agencies in accordance with their HSP to stimulate planning for services and/or facilities identified as priorities in the HSP and AIP. When available, the fund will be allotted by the HSA.

AREAWIDE CHP AGENCY ("B AGENCY") - The regional health planning unit functioning under P.L. 89-749.

AVAILABILITY - Availability is the extent to which health care services are present in a specified geographic area. The mere presence or absence of a given service is the simplest measure of its availability. A better measure of availability is whether or not a particular service is present in the appropriate quantity (capacity). The extent to which health care resources (manpower, facilities, equipment) are present in an area is often used as proxy measure of service availability.

AVERAGE DAILY CENSES - The average number of inpatients within a facility each day for a given time period (usually one year).

AVERAGE LENGTH OF STAY - The average number of inpatient days spent by patients within a facility.

BACTERIOLOGY - The science which deals with bacteria and their relation to medicine, industry, and agriculture.

BARBITURATES - The most commonly abused sedative. They are used for the treatment of epilepsy, high blood pressure, insomnia, and in the treatment and diagnoses of mental disorders.

BASIC LIFE SUPPORT (BLS) - The first of two levels of emergency medical care, BLS systems provide the basic services necessary to stabilize a patient's condition and sustain that person's life.

BED CAPACITY - The total number of beds which are normally available for inpatient use. This refers to the actual number of beds, based on space intended for use, whether or not beds are actually installed. Newborn beds, beds in emergency rooms, anesthesia, recovery rooms, and special diagnostic beds are usually not included.

BED COMPLEMENT - The total number of beds that are normally available in a facility. Beds excluded from the count are the same as those in bed capacity.

BED NEED FORMULA - A mathematical formula predicting the appropriate total number of hospital or long term care beds and the number of hospital or long term care beds by speciality service for a specific population in a specified year.

BLOCK GRANT FINANCING - A consolidation of functional programs into one grant.

BLUE CROSS - An independent non-profit, tax-exempt membership corporation in a specific geographic area providing insurance type protection against hospital costs.

BLUE SHIELD - An independent non-profit, tax-exempt membership corporation in a specific geographic area providing insurance type protection against surgical and other types of physician services.

BOND - A written promise by the issuer such as a hospital district to repay a sum of borrowed money on a specified date and to pay a set rate of interest on the loan.

BUDGET - A detailed financial plan carrying out a program of activities over a specified period, usually a fiscal year.

CAPITAL EXPENDITURE - An expenditure which is made by or on behalf of an institution or program, not properly chargeable as expenses of operation and maintenance under generally accepted accounting principles. Capital expenditures include force account expenditures (i.e., an expenditure for construction project undertaken by a facility as its own contractor).

CAPITATION FEE - A method of payment, in contrast to fee for service, in which a fixed rate is paid per person.

CARDIOPULMONARY RESUSCITATION (CPR) - A technique which enables a person to revive a patient whose heartbeat and breathing have stopped, by means of artificial respiration and external cardiac pressure.

CASH FLOWS - The actual receipts (positive cash flows) or expenditures (negative cash flows) of dollars in the form of cash or checks.

CATASTROPHIC HEALTH INSURANCE - A health insurance plan providing coverage for costs in excess of normal liability.

CATCHMENT AREA - A defined geographic area served by a program (target area).

CATEGORICAL GRANT FINANCING - Grant funding for limited use directed for specific objective.

CATEGORIZATION - A determination of hospital capability to handle emergency patients.

CENTER FOR HEALTH PLANNING - Agencies providing technical assistance and training to Health Systems Agencies and State Agencies authorized by P.L. 93-641. The Center for Health Planning for this region is the PACT Center.

CENTRAL DISPATCH - Dispatching of emergency help is conducted, in all emergencies, from one location.

CEREBRAL ANGIOGRAPHY - A procedure in which contrast material is injected into the bloodstream, and during the infusion the blood vessels in the skull can be imaged by conventional X-ray techniques.

CERTIFICATE OF NEED - The process by which the value of proposed changes in health facilities and services is measured against public need. Such changes may include: construction of new facilities or development of new services, conversion of existing facilities or services and modernization of existing services or facilities. The process of certification of need calls for Review and Comment by the HSA and Approval by the DHES.

CERTIFICATION - The approval given to an individual by a state or federal agency. This approval is a statement that the individual has met certain minimum eligibility requirements to work in a program and in a specific job.

CHEMISTRY - A science that deals with the composition, structure, and properties of substances and of the transformations they undergo.

CHIROPRACTIC CENTER - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to offer facilities, help and services to persons desiring chiropractic treatment under the supervision of persons licensed to practice the chiropractic system of therapeutics, as distinguished from medical and surgical treatment as defined in the Medical Practice Act of the State of Montana.

CHRONIC CARE - The treatment of chronic disease where long-term treatment is required.

CLINIC - An outpatient facility for diagnosis and treatment.

CLINICAL BIOCHEMISTRY - The chemistry of living organisms and of vital processes, especially as it relates to patient care.

CLINICAL PATHOLOGY - Pathology applied to the solution of clinical problems, especially the use of laboratory methods in clinical diagnosis.

COINSURANCE - A cost sharing provision in most health insurance policies where the insured is required to pay a percentage of health care cost.

COMMUNITY CLINICS AND EMERGENCY CENTER - A health institution, licensed by the State Health Department, which is planned, organized operated and maintained to provide basic community facilities and services for the diagnosis and treatment of individuals requiring outpatient services and emergency care, including inpatient accommodations for emergency care.

COMMUNITY MENTAL HEALTH CENTER - A physical plant or a group of mental health services under unified administration and including at least the following: 1. Inpatient services; 2. Outpatient services; 3. Day hospitalization; 4. Emergency services; 5. Consultant and educational services, which services are provided principally for mentally ill persons residing in a particular community or communities in or near which the facility is situated. The term "unified administration" shall mean either alone or in conjunction with other facilities owned or operated by a licensee or affiliated with the licensee.

COMPREHENSIVE HEALTH PLANNING (CHP) - The previous system of area-wide health planning agencies and state agencies functioning under P.L. 89-749. Included in this system were 314 (b) Agencies which served locales and 314 (a) Agencies which acted as the agency which coordinated the activities of the 314 (b) Agencies on a statewide basis.

CONDITIONAL DESIGNATION - A limited period (up to 24 months) in which an HSA or SA is required to gear up for and carry out those functions specified for it under P.L. 93-641.

CONSUMER - Persons who are neither direct or indirect providers of health care and who make up a majority of membership of an HSA Governing Body and the SHCC.

CONTINUITY - Continuity refers to the degree of coordination present in the delivery of health care services to each consumer. Continuity is a measure of the extent to which the health system interrelates and integrates in various services delivered to a consumer over time and in various settings.

Continuity of the health care system is the degree of coordination of services, their correct sequencing and timing, the interrelationships within the system, and the interaction of the consumer with the health system.

Continuity also refers to the existence of patient care management, in which a continuing record of services received, conditions reported, and planned program of service use is maintained. Usually refers to the use of services for single illness episode. The integration of prescribed services, considering the person as a whole, is sought.

CONVALESCENT CENTER - A health institution that is planned, organized, operational and maintained to offer facilities and services to inpatients requiring restorative care and treatment and that is either an integral patient care unit of a general hospital or a facility physically separated from but maintaining an affiliation with all services in a general hospital.

COOPERATIVE HEALTH STATISTICS SYSTEM (CHSS) - A program in which federal, state, and local governments cooperate in collecting health statistics. Statistics will be collected in the areas of health manpower, health facilities, hospital care, household interviews, ambulatory care, long-term care, and vital statistics.

COSTS - The total economic value of resources required to provide services, including all financial expenditures, especially expenditures for capital and operating requirements.

COST BENEFIT ANALYSIS - A procedure which attempts to relate program costs to the results of program activities, expressed in monetary units, to aid in determining the best monetary investment.

COST CENTER - An accounting procedure where costs are attributed to hospital units such as emergency or radiology rather than to services such as hospital wide nursing or laundry.

COST CONTAINMENT - Formal activity related to the control of health services costs through efforts such as improved efficiency, utilization review, claims review, or other activities.

COST EFFECTIVENESS ANALYSIS - Procedure in which a program's costs are calculated and alternate ways are compared for achieving a specific set of results (benefits).

COST OUTCOME ANALYSIS - The procedure which relates program costs to program results (outcomes) without translating outcomes into economic indicators, i.e., the determination of the minimum costs that are necessary to produce a given outcome.

COUNCIL OF GOVERNMENTS (COG) - Multi-jurisdictional cooperative association of local governments to permit a comprehensive approach to problems that affect the region as a whole. COGs are substate regional planning agencies established by states and are responsible for areawide review of projects, development of regional plans, and other special purpose arrangements.

CREDENTIALING - The recognition of acceptability in meeting the standards of registration, certification, or licensure of manpower or facilities.

CRITERIA - Generally acceptable guidelines of performance, upon which recommendations and decisions are based for various review responsibilities.

CRITICAL CARE - Care provided in an acute or crisis situation. EMS systems refer to ten critical care categories for which acute care is planned.

CYTOLOGY - A branch of biology dealing with the structure, function, multiplication, pathology, and life history of cells.

DATA - Detailed information of any kind, usually refers to statistical information.

DAY CARE - Services that are provided on a business day basis rather than around the clock. Day care services include mental health services, rehabilitation, and child care services.

DEBT SERVICE - The principal amount of a loan and the interest on the loan which a borrower agrees to pay with periodic payments over a specified period of time.

DEDUCTIBLE - A provision in health insurance policies where the insured pays a specified minimum loss before the insurer provides coverage.

DEFINITIVE CARE - Measures taken to correct or limit illnesses or injuries which interfere with normal body functions.

DEMAND - A concept addressing which services the consumer is willing and able to purchase.

DENTAL HEALTH SERVICES - All preventive, therapeutic, and education services that pertain to the teeth, oral cavity, and related structures.

DEPARTMENT OF HEALTH, EDUCATION AND WELFARE - The federal level executive branch agency charged with the implementation of most federal health programs.

DEPRECIATION - The decline in value of capital assets due to use and/or age.

DESIGNATED PLANNING AGENCY (DPA) - A state agency which administers the capital expenditure review functions under Section 1122 of the Social Security Act. The DPA in Montana is the State Health Department.

DEVELOPMENTAL DISABILITY - A chronic disability or impairment originating prior to age eighteen which is related to intellectual function.

DIAGNOSIS - The process of determining by examination the nature and circumstance of a diseased condition.

DIALYSIS TREATMENT CLINIC - A health institution or a department of a licensed hospital planned, organized, operated and maintained to provide outpatient treatment by means of hemodialysis and/or training for home use of hemodialysis equipment.

DIRECT COST - A cost identifiable with a specific program activity.

DIRECT PROVIDER - Individuals whose primary current activity is the provision of health care; or the administration of facilities or institutions in which such care is provided.

DISABILITY - A limitation of an individual when compared to others of similar age, sex and occupation. A disability may be physical, mental or social in nature.

DISEASE - A disorder or impairment of the normal state of being.

ECHOENCEPHALOGRAPHY - Ultrasonic waves are directed at the head, and their reflections are detected and analyzed to acquire information about distortions in the shape of the brain.

ECONOMIC FEASIBILITY - Evaluation of program's potential for success based on factors such as the construction and equipment costs, revenue sources, service costs, and population economic indicators.

ELECTROENCEPHALOGRAPHY - Recording of the electric currents developed in the brain by means of electrodes applied to the scalp or the surface of the brain, or placed within the substance of the brain.

EMERGENCY DEPARTMENT - The organized facilities and services provided primarily for the management of outpatients coming to the hospital for emergency care. The department is also sometimes referred to as emergency room, accident room, or casualty room.

EMERGENCY MEDICAL SERVICES (EMS) - A full range of medical and medically-related services provided on an emergency basis to people who might die or become permanently disabled without them; i.e., medical, transportation, and technical services provided for the treatment of trauma and other types of medical emergencies.

EMS AREA or REGION - The geographic boundaries within which an EMS system is organized. These boundaries are generally determined by a combination of medical trade areas, political boundaries and geographic or topographic barriers.

EMS DISPATCHER - A person trained to receive calls for emergency medical help, assess the situation, and dispatch the necessary services in an expedient and coordinated manner.

EMS SYSTEM - A structure that establishes procedures and protocol for the provision of EMS so that all services work together to provide the full range of care needed by each patient.

EMERGENCY MEDICAL TECHNICIAN (EMT) - A health professional who provides first aid and other life support measures to emergency patients under the supervision of a nurse or doctor. There are two levels of EMTs---the EMT-A who has been trained in an 82 hour course primarily for ambulance attendants and the EMT-P who has completed a minimum of 120 hours of training in basic and advanced life support techniqures. The EMT-P also is referred to as a paramedic.

ENVIRONMENTAL HEALTH - The aspect of public health involving man's surrounding environment: air, water, sewage, food, drugs, sanitation, and other conditions that may exert an influence on man's health and well-being.

EVALUATION - An assessment or examination in which actions and their results are measured against predetermined norms in order to select among alternatives for the future.

EXECUTIVE COMMITTEE - A committee of the Health Systems Agency governing body that has authority to take actions on behalf of the governing body.

EXISTING SERVICE - Those services currently offered or available in a Health Service Area.

EXPERIMENTAL HEALTH SERVICES DELIVERY SYSTEM (EHSDS) - A federal program, currently being phased out, to develop, test and evaluate the organization and operation of coordinated communitywide health services management systems.

EXTENDED CARE FACILITY (ECF) - A skilled nursing facility that lodges patients who need a long term to recover from an illness or operation but do not need to stay in a hospital during that time.

FACILITY - The buildings, grounds, supplies, and equipment which are used or occupied by the organization or one of its units.

FACILITY FOR THE MENTALLY RETARDED (MR) - A facility especially designed for the diagnosis, treatment, education, training, or custodial care of the mentally retarded, including facilities for training specialists and sheltered workshops for the mentally retarded, but only if such workshops are part of facilities which provide or will provide comprehensive services for the mentally retarded.

FEE FOR SERVICE - The billing system where a patient is charged for each medical encounter in accord with the services provided.

FIDUCIARY INTEREST - A relationship in which an individual or organization has an explicit or implicit obligation to act in behalf of another person's or organizations' interests.

FINANCIAL FEASIBILITY - The determination of a program's ability to balance operational income and expenses.

FIRST RESPONDERS - People with limited first aid training who can provide care to an emergency patient until ambulance or Quick Response Unit personnel arrive. First responders are quite often public safety personnel.

FIXED COSTS - Costs that do not vary with the level of output.

FOREIGN MEDICAL GRADUATE (FMG) - A physician trained by a medical school outside of the United States.

FORMULA GRANT - A type of federal grant to states which is automatically available on submission of an acceptable program for their use. The amount is usually determined by a state's population and per capital income.

FULL DESIGNATION - A status conferred on a DHES and/or HSA by the Secretary of HEW where all the statutory functions under P.L. 93-641 must be performed.

FUND ACCOUNTING - A system of accounting which establishes separate accounts for specific activities.

GENERAL ACUTE CARE HOSPITAL - A hospital that provides acute care services to the general public.

GENERAL HOSPITAL - A health institution planned, organized, operated and maintained to offer facilities, beds and services over a continuous period exceeding twenty-four hours to individuals requiring diagnosis and treatment for illness, injury, deformity, abnormality or pregnancy.

GOAL - A quantifiable, yet timeless aspiration that describes where you want to go, what exists and what has to be achieved.

GOVERNING BODY - A board of directors with an Executive Committee responsible for the organization and performance of an HSA. The qualifications for seating on a governing body are spelled out in Section 1512 (b) (3) (C) of P.L. 93-641.

GRANDFATHER CLAUSE - A provision of law that permits continued status to an entity despite changes in the law that would make them currently ineligible.

GROUP PRACTICE - A formal arrangement between three or more health professionals providing services where resources are combined and shared.

HALLUCINOGENS - Drugs which distort perception, produce dream images and hallucinations, are known as hallucinogens, psychotomimetics, dysleptics, or psychedelics. Mescaline, peyote, LSD, and STP are the most commonly abused drugs in this classification

HEALTH - Defined by the World Health Organization as a "state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

HEALTH CARE FACILITY - All building units in which health care services are provided. All health care facilities in Montana require a license or a Certificate of Compliance by the Montana Department of Health.

These facilities include:

- General Hospitals
- Psychiatric Hospitals
- Community Clinics and Emergency Centers
- Convalescent Centers
- Chiropractic Centers
- Community Mental Health Centers
- Facilities for the Mentally Retarded
- Nursing Care Facilities
- Intermediate Care Facilities
- Maternity Hospitals
- Dialysis Treatment Clinics
- Rehabilitation Centers
- Other Similar Institutions

HEALTH CARE SYSTEM - A grouping of interrelated, sometimes independent components (manpower, facilities, equipment and dollars) which is designed to achieve a set of health-related goals.

HEALTH INSURANCE - Indemnity coverage against financial losses associated with the treatment of a health problem.

HEALTH MAINTENANCE ORGANIZATION - A public or private organization organized under the laws of the State of Montana which provides or otherwise makes available to enrolled participants health care services, including at least usual physician's services, hospitalization, laboratory, x-ray, emergency and preventive services and out-of-area coverage. An HMO is compensated, except for co-payments, for the provision of the basic health care services by enrolled participants on a pre-determined periodic rate basis. Physician's services are provided directly through physicians who are either employees or partners of such organization or through arrangements with individual physicians or one or more groups of physicians, organized on a group practice or individual practice basis.

HEALTH MANPOWER - All individuals employed in health related professions.

HEALTH PLANNING - The organization of activities or projects intended to improve the population's health through the coordination and development of health resources.

HEALTH PLANNING CENTER - A center established to serve a region of the Department of HEW by providing technical assistance and training to HSAs and SHPDAs.

HEALTH RESOURCES - Human, monetary, or material resources used in producing health care and health care services.

HEALTH SERVICE AREA (HSA) - The geographic area established by the Secretary of HEW for which a health systems agency will be designed.

HEALTH STATUS - The state of health of an individual, group or population. Measurement may be accompanied by evaluation of health status indicators.

HEALTH SYSTEMS AGENCY (HSA) A non-profit, governmental or quasi-governmental entity conditionally or fully designated by the Secretary of HEW to carry out health planning and implementation functions for a Health Service Area.

HEALTH SYSTEMS PLAN (HSP) - A detailed statement of goals and five-year, long-range objectives that describe the health status, health system, and environment in the community. The HSP will assure quality health services that are available and accessible in a manner that assures continuity of care at reasonable cost and which is responsive to the unique needs and resources of the area.

This plan deals with a wide range of health care matters and delineates goals and objectives which when achieved, will improve the quality, quantity, availability and accessibility of services to the public in the area. Each HSP is reviewed by the State Health Planning and Development Agency and integrated into a State Health Plan which is approved by the Statewide Health Coordinating Council.

HEMATOLOGY - A branch of biology which deals with the blood and blood forming organs.

HILL BURTON - A program of federal support for construction and modernization of hospitals and other health facilities. The program has been modified under Title XVI of P.L. 93-641.

HISTOPATHOLOGY - Pathology dealing with a branch of anatomy that deals with the minute structure of animal and plant tissues as discernible with the microscope.

HOME HEALTH CARE - Health services rendered to an individual as needed in the home, usually of nursing skill nature. Provision of home health care may be used in many instances in place of institutionalization.

HORIZONTAL CATEGORIZATION - A classification of levels of hospital emergency capability by a predetermined scheme.

HOSPITAL - An institution which is licensed by the State Health Department and engaged in providing to inpatients and outpatients, by or under the supervision of physicians, diagnostic services and therapeutic services for medical diagnosis, treatment and care of injured, disabled or sick persons, or rehabilitation services for the rehabilitation of injured, sick or disabled persons.

HYALINE MEMBRANE DISEASE - Cause of newborn death involving respiratory tract.

IMMUNOHEMATOLOGY - The branch of medicine dealing with diseases of the blood of which the cause, the development of disease, or the clinical manifestations have been shown to be determined by an antigen-antibody reaction.

INCIDENCE - An epidemiologic term referring to the number of cases of a disease having their onset during a prescribed period of time in relation to the population unit in which they occur.

INDEMNITY - A contract or assurance by which one person engaged to secure another against losses, e.g., insurance.

INDIRECT COST - A cost which cannot be identified directly with a particular activity, service or product of the program experiencing the cost.

INDIRECT PROVIDER - An individual or organization with a fiduciary or other indirect interest in the delivery of health care services.

INFORMATION/REFERRAL - A facility that directs people with alcohol or drug problems to available resources.

INFORMATION SYSTEM - A set of procedures, methods, organization, software, and hardware elements used to file and retrieve information for planning and decision making.

INITIAL CONTACTS - A person is an initial contact if he is seeking help or information from a program for the first time. The person may or may not become a client of the program, but persons seeking help because of another's problem are also considered initial contacts. Only those persons encountered on a face-to-face basis are counted as initial contacts.

INPATIENT CARE - Treatment of patients who have been admitted overnight or longer to a facility.

INSTITUTIONAL HEALTH SERVICES - Health services provided through health care facilities and health maintenance organizations and includes the entities through which services are provided.

INTERMEDIATE CARE FACILITY (ICF) - A health related institution, licensed by the State Department of Health, which is planned, organized, operated, and maintained to provide facilities and services which are supportive, restorative and preventive in nature, with related social care, to individuals who because of a physical or mental condition, or both, require care in an institutional environment but who do not have an illness, injury or disability for which regular medical care and 24-hour nursing services are required.

JOINT COMMISSION ON ACCREDITATION OF HOSPITALS (JCAH) - A private, non-profit organization that encourages and monitors high standards for institutional medical care.

LICENSE - A permission granted to an individual or organization by competent authority, usually public, to engage in a practice, occupation or activity otherwise unlawful. It is usually granted on the basis of examination and/or education rather than on measures of performance.

LIFE SAFETY CODE - A fire safety code prepared by the National Fire Protection Association, the provisions of which must be met by facilities certified for participation under Medicare and Medicaid.

LONG-TERM CARE - Health and/or personal care services required by persons who are chronically ill, aged, disabled or retarded in a facility over an extended period.

LONG-TERM CARE FACILITY - An institution or a distinct part of an institution which is primarily engaged in providing to inpatients skilled, intermediate, or sheltered nursing care and related services for patients who require medical, nursing or rehabilitation services and is licensed by the State Department of Health.

MAJOR PURCHASERS OF HEALTH CARE - Entities other than providers of health care or indirect health care for employees, members, or beneficiaries.

MALPRACTICE - Professional misconduct or lack of ordinary skill in the performance of a professional act.

MATCHING FUNDS - Funds made available to an organization by a supporting agency in a specified percentage that matches a contribution from another agency.

MATERNITY HOSPITAL - A health institution licensed by the State Health Department, which is planned, operated, and maintained to offer medical and nursing facilities, help and services over a continuous period exceeding 24 hours to women requiring care before, during and recovery from obstetric delivery.

MEDICAID (TITLE XIX) - A federally aided, state operated and administered program which provides medical benefits for certain low income persons in need of health care.

MEDICAL AUDIT - Detailed retrospective review and evaluation of selected medical records by qualified professional staff. Professional performance is evaluated by comparing it with accepted criteria, standards and professional judgment.

MEDICAL EMERGENCY - An emergency in which the patient may die or become permanently disabled without immediate medical attention.

MEDICAL FACILITY - Any outpatient or inpatient medical treatment site.

MEDICAL RECORD - A record kept on patients which properly contains sufficient information to identify the patient clearly, justify diagnosis and treatment, and document the results accurately.

MEDICALLY UNDERSERVED POPULATION - A population of an urban or rural area designated by the Secretary (DHEW) as an area with a shortage of personal health services or a population group designated by the Secretary as having a shortage of such services.

MEDICARE (TITLE XVIII) - A nationwide health insurance program for people aged 65 and over, for persons eligible for Social Security disability payments for over two years, and for certain workers and their dependents who need kidney transplantation or dialysis.

MENINGITIS - Inflamation of the three membranes that envelop the brain and spinal cord.

METHODOLOGY - The principles and the approach used to organize information.

MICROBIOLOGY - The science which deals eith the study of microorganisms, including bacteria, molds and pathogenic protozoa.

MICROWAVE SYSTEM - A system which improves communications capabilities in mountainous areas by allowing the transmission of high frequency radio waves from an initial point to a tower and then to the desired receiver.

MOBILE INTENSIVE CARE UNIT (MICU) - A vehicle with the space, equipment, supplies, communications and capabilities necessary for the provision of supportive, definitive and therapeutic emergency medical care for the ill or injured, both on site and during transport, by specially qualified personnel. Such vehicles are to be affiliated with a designated hospital.

MODERNIZATION - Health facility and equipment renovation, repair or replacement.

MONTANA FOUNDATION FOR MEDICAL CARE - The organization designated as the Professional Standards Review Organization in Montana.

MONTANA MEDICAL EDUCATION & RESEARCH FOUNDATION (MMERF) - Organization to provide continuing medical need education.

MONTANA STATUTE - The Montana Certificate of Need Law amending Sections 69-5201 and 69-5212 of R.C.M. 1947, and new section 69-7303.

MORBIDITY - The extent of illness, injury, or disability in a defined population.

MORTALITY - The number of deaths in a defined population.

MYCOLOGY - A branch of science dealing with fungi.

NARCOTICS - Drugs which produce insensibility or stupor due to their depressant effect on the central nervous system. Included in narcotics are: opium, opium derivatives (morphine, codeine, heroin), and synthetic opiates (meperidine, oxycodone, methadone). Cocaine is also considered as a narcotic for law enforcement reasons even though it is actually a stimulant.

NATIONAL COUNCIL ON HEALTH PLANNING - A fifteen (15) member advisory council that monitors implementation of P.L. 93-641 and consults on development of national health planning guidelines, and evaluates new medical technology's role in the health system.

NATIONAL HEALTH INSURANCE (NHI) - Universal health insurance coverage. Various NHI proposals are being debated by the U.S. Congress.

NATIONAL HEALTH PLANNING GUIDELINES - Those guidelines promulgated by the Secretary of HEW which set standards respecting the appropriate supply, distribution and organization of health resources. These guidelines will include a statement of national health planning goals.

NATIONAL HEALTH PRIORITIES - Priorities established by the Congress for health planning as spelled out in P.L. 93-641.

NATIONAL HEALTH SERVICE CORPS - A program that assigns health care personnel to critical manpower shortage areas.

NECROPSIES - Examinations of bodies after death.

NEED - A concept addressing what services (either real or perceived) should be provided to the consumer; i.e., the appropriate amount and kind of services to be provided.

NEEDS ASSESSMENT - To estimate what services should be provided as the norm or average.

NEIGHBORHOOD HEALTH CENTER - A community health service center providing primary health care services to individuals in a specified target area.

NEW INSTITUTIONAL HEALTH SERVICES - Health services provided in or through health care facilities or health maintenance organizations which were not provided for at least a 12 month period prior to an application for review.

NINE-ELEVEN (911) - A three-digit emergency telephone number suggested, accepted, and supported by the Bell Telephone System as the nationwide emergency number.

NON-CONFORMING BEDS - Hospital beds that are deficient due to: 1) unsuitable structural frame, 2) fire and safety deficiencies, 3) unsuitable room and environment, or, 4) inadequacy of ancillary services.

NON-METROPOLITAN - Areas that are not U.S. Census Bureau Standard Metropolitan Statistical Areas (SMSAs).

NON-PROFIT - A program that is : 1) tax exempt, and, 2) returns all monies to its operation rather than payment of dividends to investors.

NON-SYPHILIS SEROLOGY - A laboratory category of serology tests, which includes all those not related to tests for syphilis.

NUCLEAR OR RADIOISOTOPE BRAIN SCANNING - The injection of radioisotopic material into the bloodstream and the scanning of the head by a camera which can detect and record the radioactivity. Areas with abnormal concentrations of radioactivity are presumed to be damaged.

NURSE - An individual trained and qualified by law to provide nursing services. Categories include Registered Nurse (RN), Licensed Vocation Nurse (LVN), and Licensed Practical Nurse (LPN).

NURSE PRACTITIONER - A registered nurse trained to provide primary care services independently but under the supervision of a physician.

NURSING HOME - Institutions other than hospitals providing levels of maintenance, personal, and nursing services to individuals unable to care for themselves.

OBJECTIVE - A quantifiable aspiration that has a timeline. It may take several objectives to reach a goal.

OBLIGATION FOR A CAPITAL EXPENDITURE - An obligation for a capital expenditure shall be deemed to have been incurred:

1. When an enforceable contract is entered into for the construction, acquisition, lease or financing of a capital asset; or

2. Upon the formal internal commitment of funds by a facility for a force account expenditure which constitutes a capital expenditure; or

3. In the case of donated property, the date on which the gift is completed.

OCCUPANCY - The ratio of average daily census to licensed beds usually expressed as a percent. Occupancy rate may also be determined by dividing the number of patient days per year by available bed days (365 times the number of licensed beds).

OCCUPATIONAL HEALTH - Efforts relating to the provision of health and safety services in the work place.

OMB Circular A-95 - Office of Management & Budget regulations affecting certain Federal grant and loan applications.

OPEN MEETING -A public meeting to allow community participation in policy decision making.

OTHER SIMILAR INSTITUTION - A health institution, licensed by the State Health Department which is planned, organized, operated and maintained to conduct a program of medical treatment and nursing care and/or supervision which by its nature does not fit into any of the preceeding classifications defined by the State Health Department. The institution shall be planned, constructed, organized, operated and maintained to furnish care and treatment for the individuals whom it serves.

OPERATIONS RESEARCH - The application of scientific and mathematical methods to the study and analysis of complex problems that are not traditionally considered within the field of scientific inquiry.

OSTEOPATHIC MEDICINE - A school of medicine traditionally oriented to the adjustment of the medical organism currently identical to allopathic medicine with the exception of greater use of physical manipulations.

OUTPATIENT HEALTH CARE - Services that are provided to a patient on an ambulatory basis at a health facility without being admitted to that facility.

PARASITOLOGY - The science or study of parasites and those infected with parasites.

PARITY - The number of children previously born.

PATHOLOGY - The study of the essential nature of diseases and especially of the structural and functional changes produced by them.

PATIENT DAY - The unit of measure denoting 24-hour lodging facilities provided and services rendered to one inpatient between the census taking hour (usually midnight) or two successive days.

PATIENT ORIGIN STUDY - A study to determine the geographic distribution of the homes of the patients served by one or more health services.

PATIENT TRANSFER GUIDE - Published materials describing the capabilities of facilities to which a physician may want to transfer a patient.

PEER REVIEW - The evaluation of practicing physicians or other health professionals of the effectiveness and efficiency of services ordered or performed by other members of their professional category (peers). It sometimes refers to the activities of Professional Standards Review Organizations and utilization reviews.

PER DIEM COST - The cost incurred by an institution for a day of care for one patient.

PHYSICS - A science that deals eith matter and energy and their interactions in the fields of mechanics, acoustics, optics, heat, electricity, magnetism, radiation, atomic structure, and nuclear phenomena.

P. L. 93-641 - The numerical designationgiven to the National Health Planning and Resources Development Act of 1974.

PNEUMOENCEPHALOGRAPHY - After the injection of air into the spinal column, the air moves up into the ventricles of the brain where it can be seen on conventional X-ray. These distortions in the ventricular space indicate space-filling lesion in the brain.

POLICY - A definite course of method of action selected from alternatives to determine present and future decisions.

POVERTY AREA - A geographic area with a large number of low-income families.

PREINFARCTION ANGINA - Pain in muscle tissue caused by an interrupted blood supply due to tissue death or disease.

PRELIMINARY STATE HEALTH PLAN - The draft State Health Plan submitted to the SHCC by the SHPDA. This draft may contain recommendations by the SHPDA to modify HSPs.

PREPAYMENT - The advance payment for services as in insurance or health maintenance organizations.

PREVALANCE - The number of cases of disease present at a particular time and in relation to the size of the population.

PREVENTIVE MEDICINE - Health Services (such as immunization programs or early detection of disease) intended to prevent the occurrance of health problems.

PRIMARY CARE - See the Primary Care Section of the Health Systems Plan.

PRIMARY TRANSPORTATION - An organized rapid response system of emergency vehicles which provide transport of emergency personnel and patients from the emergency scene to the appropriate medical facilities.

PRIORITY - Assignment of a perferential rating to something meriting attention among competing alternatives.

PROFESSIONAL STANDARDS REVIEW ORGANIZATION (PSRO) - A physician sponsored organization operating with authority of the Social Security Amendments of 1972, P.L. 92-603, charged with comprehensive and ongoing review of services provided under Medicare, Medicaid, and Maternal and Child Health Programs, to determine whether services are medically necessary, provided in accordance with professional criteria, norms and standards and rendered in the appropriate setting. The PSRO in Montana is The Montana Foundation for Medical Care.

PRO FORMA - Standards which embody forecasts of all assets and liabilities as well as income statement items.

PROGRAM - A set of related organizations, resources, and/or program transactions directed to the accomplishment of a defined set of objectives for a specified target population or specified geographic area.

PROJECT REVIEW - Review and comment functions carried out by Health Systems Agencies in accordance with Montana Certificate of Need Laws, Section 1122 of the Social Security Act, and New Institutional Health Services.

PROPRIETARY - For profit.

PROSPECTIVE REIMBURSEMENT - Any method of paying hospitals in which amounts or rates of payment are established in advance for the coming year and the hospitals are paid these amounts regardless of the costs they actually incur.

PROVIDER - An individual or organization whose responsibilities involve the provision, administration, teaching, or development of health services, activities, or supplies. The provider may have a direct or indirect interest in the health industry.

PSYCHIATRIC HOSPITAL - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to offer facilities, beds, and services over a continuous period exceeding twenty-four (24) hours to individuals requiring early diagnosis and intensive and continued clinical therapy for mental illness, and rehabilitation. An integrated therapeutic program shall be provided within the institution. The therapeutic program shall be directed by a person or persons licensed to practice medicine in the State of Montana, qualified by training and experience in psychiatry, preferably a Diplomate in the American Board of Psychiatry and Neurology; and include a team of specialized personnel from the medical, psychological, social and vocational disciplines who function to restore the individual to his fullest abilities.

PUBLIC ACCOUNTABILITY - The responsibility owed to the general public in the form of public meetings, memberships, reports, open records and declaration of conflict of interest.

PUBLIC HEALTH - The field dealing with the protection and improvement of community health by organized community efforts.

PUBLIC HEARING - A public meeting considering a specific issue in an organized manner allowing for a decision considering all available information and viewpoints.

PUBLIC REGIONAL PLANNING COMMISSION - See Council of Governments.

PUBLIC SAFETY AGENCIES - Law enforcement, fire protection, search and rescue, and other agencies whose purpose is to insure the safety and well-being of the citizenry.

QUALITY - Quality refers to the degree to which health care services are delivered in accordance with established professional standards in terms of structure, process and outcome. Sturcture measures the physical facilities, staff qualifications and organization of services; process measures the appropriateness and professional adequacy of services; and outcome measures the results of services in terms of the patient's health condition.

Quality is frequently described as having three aspects: 1) quality of input resources (i.e., certification and/or training of providers); 2) quality of the process of service delivery (i.e., use of appropriate procedures for a given condition); 3) and quality of the outcome of service use (i.e., actual improvement in condition or lack of harmful effects).

QUICK RESPONSE UNITS (QRUs) - A group of individuals trained and equipped to provide Basic Life Support. Generally located in areas where ambulance response times are long because of the distance involved, the nontransport QRUs are dispatched at the same time as an ambulance and provide emergency care until an ambulance arrives.

RADIOBIOASSAY - Determination of the active power of a sample of radiation by noting its effect on animals or humans as compared with the effect of a standard preparation.

REGIONAL MEDICAL PROGRAMS (RMP) - Previous agencies established to plan for and stimulate the development of health delivery programs to satisfy the needs of the region they served (functions now transferred to MHSA and MMERF).

REGIONAL OFFICE - One of ten decentralized offices of the United States Department of Health, Education and Welfare which conducts the business of that department for a specified group of states.

REHABILITATION - Preparing a person to function within the limits of the original or residual disability by the acquisition, return, or accommodation to loss of skills or knowledge.

REHABILITATION FACILITY - A center providing vocational, social, medical, and educational services to improve impairments due to disease or injury.

REIMBURSEMENT - Payment for services rendered.

RESIDENTIAL CARE - Diagnosis, care, and treatment of alcoholics in small group homes.

RETROSPECTIVE REIMBURSEMENT - Payment to providers by a third party carrier for costs or charges incurred by subscribers in a previous time period.

REVENUE SHARING - A federal program redistributing tax monies to local governments for the purpose of meeting specific problems including health, environment, public safety, transportation and recreation.

REVIEW & COMMENT - The process of analyzing and making recommendations regarding an applicant's proposal. Reviews are conducted by the Subarea Council, Project Review Committee and Executive Committee of the MHSA.

SANITARY CHAMISTRY - The chamistry which relates to the establishment of environmental conditions favorable to health.

SCREENING - A series of tests to identify individuals with a disease or risk of disease.

SECONDARY CARE - Health care services which mose people need less frequently, such as the general short-term hospital services, nursing home care, and the more highly specialized consultant services.

SECONDARY TRANSPORTATION - An organized system of emergency vehicles which provide transport of patients and medical personnel (after the patient's condition has been stabilized) to designated critical care centers.

SECTION 1122 - That section of the Social Security Act which pertains to changes in facilities or services as they relate to payments from Medicare and Medicaid, Title XI of P.L. 92-603.

SEPSIS - The presence in the blood or other tissues of patogenic microorganisms or their toxins.

SEROLOGY - The science dealing with serums (the watery portion of an animal fluid remaining after coagulation) and especially their reactions.

SERVICE AREA - The goegraphic region from which a particular program or facility draws the majority of its users; also known as medical trade area.

SHARED SERVICES - The coordinated or otherwise explicitly agreed upon sharing of responsibility for provisor of medical or non-medical services on the part of two or more otherwise independent health care facilities or programs.

SITE - The land proposed for construction of a health care facility and any building thereon included in the purchase cost, whether such building is to be used in the construction, or is to be razed.

SKILLED NURSING FACILITY (SNF) - A health institution, licensed by the State Health Department, which is planned, organized, operated and maintained to provide facilities and health services with related social care to inpatients who require regular medical care and 24-hour nursing services for illness, injury or disability. Each patient is under the care of a physician licensed to practice medicine in the State of Montana. The nursing services shall be organized and maintained to provide 24-hour nursing services under the direction of a registered professional nurse employed full time.

SLIDING FEE SCHEDULE - A fee schedule under which the fee charged that patient for services varies with the patient's ability to pay, however this ability is determined.

SOCIAL SERVICES - Programs provided by trained personnel to enable a patient, family members or others to deal with the problems affecting the patient's social function and well being.

SOLO PRACTICE - The operation of a private practice by one health professional.

SPECIALIST - A health professional who limits his practice to a specific area of competence usually based on specialized training and recognition by a specialty board.

STAFF - Refers to all personnel affiliated with a facility or organization. The term may also be used to refer to a specific subgroup such as medical staff or nursing staff.

STANDARD - A generally accepted measure of quantity or quality.

STANDARD METROPOLITAN STATISTICAL AREA (SMSA) - U.S. census term referring to specific areas based on specific population, metropolitan character, and integration criteria. Great Falls and Billings metropolitan areas are only areas in Montana currently qualified as SMSA's.

START-UP COSTS - The initial implementation costs incurred by a program before it begins to generate its own revenue.

STATE ADMINISTRATIVE PROGRAM (SAP) - The State agency program specifying performance within the state for components of P.L. 93-641.

STATE HEALTH PLAN (SHP) - The State's health plan made up of HSPs from each Health Systems Agency as well as modifications suggested by the SHPDA and plans for state-provided services which are also developed by the SHPDA. The final approval of the SHP rests with the SHCC.

[illegible]TE HEALTH PLANNING AND DEVELOPMENT AGENCY (SHPDA) OR (SA) - The agency of state government selected by the Governor and approved by the Secretary of the Department of Health, Education and Welfare, which assumes responsibility for health planning for state government and coordination of health plans developed by each Health Systems Agency within its jurisdiction. The SHPDA in Montana is the Health Planning and Resource Development Bureau, Hospital & Medical Facilities Division of the State Department of Health and Environmental Sciences.

STATE MEDICAL FACILITIES PLAN (SMFP) - The state's facilities prioritization plan which identifies projects and their relative need for assistance under Title XVI of the Public Health Service Act for modernization, construction or conversion of facilities.

STATEWIDE EMS SYSTEM - A network of regional EMS systems, coordinated and integrated at the state level.

STATEWIDE HEALTH COORDINATING COUNCIL (SHCC) - A statewide body comprised of the Health Systems Agency within the state as well as other appointments made by the Governor. Among other things, the SHCC approves and adopts State Health Plans and State Medical Facilities Plans. As the SHCC can alter an HSA's Health Systems Plan, it is also in a position of final approval of the HSP.

STIMULANTS - Are drugs which directly stimulate the central nervous system. The most widely known stimulant is caffeine. The most commonly abused stimulant is amphetamines.

SUBAREA ADVISORY COUNCILS - Advisory bodies serving areas within a Health Service Area. These councils are permitted by law and may advise the Governing Body of an HSA with respect to the performance of its mandated junctions.

SUBSTANTIAL CHANGE IN SERVICE - Substantial changes in services include:

1. The addition of any new clinically related (i.e., diagnostic, curative, or rehabilitative) service to be offered or department to be added;

2. The termination of a clinically related service or department which had previously been provided;

3. Any change in the scope or type of an existing service or department, or in the capability for providing such service;

4. The conversion from one type of health facility to another, including the conversion from one level of care to another in a nursing home.

SUPPORTIVE CARE - Measures taken to maintain vital body functions.

SURGICALS - Examinations of tissues removed during surgery.

SURGICENTER - A facility which serves outpatients requiring surgical treatment exceeding the capacity of the physician's office but not requiring hospitalization as an inpatient.

SYPHILIS SEROLOGY - Examinations of serums for the contagious venereal disease, syphilis.

SYSTEMS ANALYSIS - The construction of models to simulate real life and to test effects produced by alterations in constraints or variables which could not be tested in the real world.

TARGET POPULATION - The population group or subgroup toward which the service of programs, organizations, and organizational units are directed.

TASK FORCE - A group of persons that are charged with investigating a particular problem and formulating proposals for its solution.

TELEMETRY - The capability for, and use of, radio channels for transmitting patient vital signs.

TERTIARY CARE - The most highly developed and specialized health care services; medical subspecialities that are offered in a limited number of sophisticated facilities.

THIRD PARTY PAYER - A private organization or government agency that pays for the health services of recipients.

TITLE V OF THE SOCIAL SECURITY ACT - Authorizes payments for maternal and child health services.

TITLE XIII OF THE PUBLIC HEALTH SERVICE ACT - The Health Maintenance Organization Act of 1973 (P.L. 93-222).

TITLE XV OF THE PUBLIC HEALTH SERVICE ACT - That amendment to the Public Health Service Act dealing with National Health Planning and Development.

TITLE XVI OF THE PUBLIC HEALTH SERVICE ACT - That amendment to the Public Health Service Act dealing with Health Resources Development.

TITLE XVIII OF THE SOCIAL SECURITY ACT - Authorizes payments for the Medicare Program.

TITLE XIX OF THE SOCIAL SECURITY ACT - Authorizes payments for the Medicaid Program.

TOXICOLOGY - The sum of what is known regarding poisons; the scientific study of poison, their actions, their detection, and the treatment of the conditions produced by them.

TRANQUILIZERS - Are generally used to counteract tension and anxiety without significantly impairing mental and physical functions.

TRANSFER AGREEMENTS - Written agreements between facilities which specify availability and payment arrangements.

TRAUMA - An acute injury or wound, such as head injuries, gunshots, motor vehicle accidents, etc.

TRIAGE - The sorting and classification of the ill or injured to determine priority of need and appropriate care or treatment.

UNIFORM COST ACCOUNTING - The use of a common set of accounting definitions, procedures, terms and methods for the accumulation and communication of quantitative data relating to the financial activities of several enterprises.

UTILIZATION - Patterns or rates of use of health care services.

UTILIZATION REVIEW (UR) - Evaluation of the necessity, appropriateness, and efficiency of the use of medical services, procedures, and facilities.

VARIABLE COSTS - Costs which generally increase or decrease as utilization fluctuates.

VENTRICULAR ARRHYTHEMIA - Variation in normal rhythm of the heartbeat.

VERTICAL CATEGORIZATION - A classification of hospital capability according to specialty care resources.

VIROLOGY - A branch of mocrobiology concerned with viruses and virus diseases.

VITAL STATISTICS - Statistical data reporting health, disease, deaths, births, and marriages. These are frequently used for health status.

WORKING CAPITAL - The sum of an institution's investment in short-term or current assets.

WORK PROGRAM - A plan of action or schedule for task completion.

APPENDIX 5

THE HEALTH PLANNING AND DEVELOPMENT PROCESS

In revising the first Montana Health Systems Plan and preparing the second one, a number of changes were made in the health planning process.

First, the Health Systems Agency set up task forces to advise on changes to be made in revising the components in last year's plan. These task forces were composed of both members of HSA Subarea Advisory Councils and of interested providers.

Second, because of the large volume of material being changed and the limited time available for revisions, three single statewide hearings were held on revised components. No public hearings on these components were held in the subareas. In the future, the revision process will be altered so that each subarea will have a chance to review each component in the plan in a public hearing.

Finally, the format for each component was changed to make the plan more understandable, readable, usable and practical.

All of the new components which have been added to this year's Plan were reviewed in public hearings in each of the subareas. These include:

- Alcohol Services
- Drug Services
- Mental Health Services
- Primary Care Personnel
- Dental Personnel
- Emergency Medical Services
- Preventive Dental Services

Public meetings were held in four of the five subareas to discuss the health status components (Heart Disease, Cancer, and Alcoholism) and to obtain suggested goals and objectives.

Figure 1 illustrates the general process used in developing all new components in the Montana Health Systems Plan. This process was jointly developed by the MHSA and State Agency (SHPDA). It was submitted to, and passed by, the MHSA Governing Board on November 5, 1976. The use of task forces was incorporated into the planning process by the MHSA Executive Committee at their June 2, 1978 meeting.

In developing the plan, each component, or set of service guidelines, goes through the following steps:

(1) After the subject has been identified, the HSA staff convenes a task force (made up of Subarea Advisory

DRAFT
REVIEW AND COMMENT
COPY

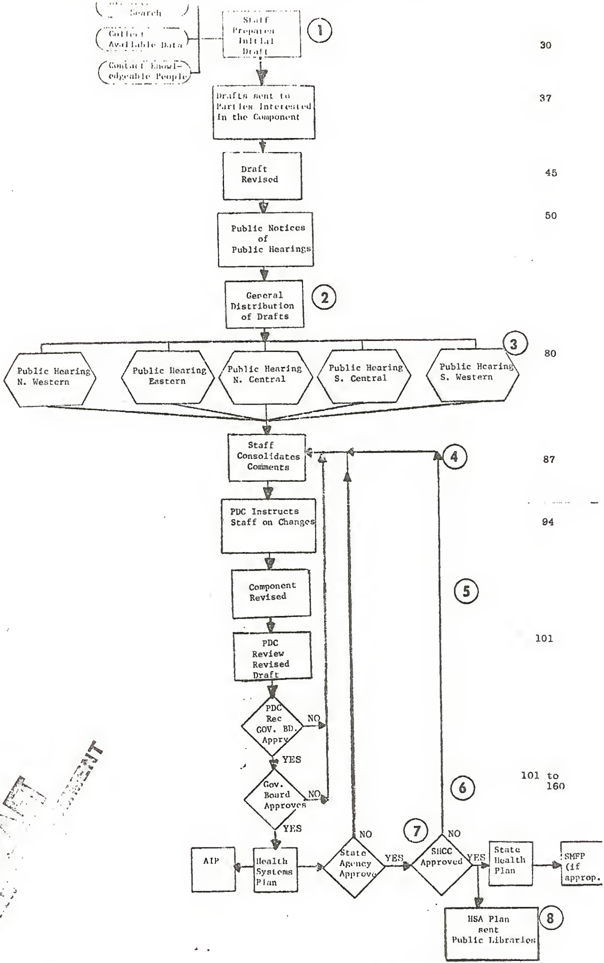

Search
Collect Available Data
Contact Knowledgeable People
Staff Prepares Initial Draft
1
30
Drafts sent to Parties Interested In the Component
37
Draft Revised
45
Public Notices of Public Hearings
50
General Distribution of Drafts
2
3
80
Public Hearing N. Western
Public Hearing Eastern
Public Hearing N. Central
Public Hearing S. Central
Public Hearing S. Western
Staff Consolidates Comments
4
87
PDC Instructs Staff on Changes
94
Component Revised
5
PDC Review Revised Draft
101
PDC Rec GOV. BD. Appr
NO
YES
Gov. Board Approves
NO
YES
101 to 160
6
AIP
Health Systems Plan
State Agency Approve
NO
YES
7
SHCC Approved
NO
YES
State Health Plan
SMFP (if approp.
HSA Plan sent Public Libraries
8

Figure 1
Flow Chart for the Health Systems Plan Development Process

Council members, selected providers and other interested persons) to advise the staff on the areas to be highlighted, general themes to be presented, and criteria to be used.

(2) The planning staff of the Health Systems Agency prepares initial drafts of each component. Each component was written in accordance with the outline presented in Figure 2. This draft is submitted to task force members for their comments and criticisms. If controversial issues are identified, the staff consults with the task force on how they should be addressed in the rewrite.

(3) The draft is written and prepared for general distribution. Figure 3 identifies the number of people to whom copies are sent. At the same time, notices of the public hearing(s) are sent to at least one major newspaper in the subareas. The hearing(s) is held at least 30 days after this mailing. In accordance with P.L. 93-641, copies are sent to the following agencies for their review and comment:

- Office of Budget and Program Planning (the State A-95 Agency)
- Medical Assistance Bureau, Department of Social and Rehabilitation Services (Medicaid)
- Montana Hospital Rate Review Commission
- Montana Foundation for Medical Care (PSRO)
- Montana Medical Education and Research Foundation
- Montana Hospital Association and its District Chairmen
- Montana Medical Association and its Local Presidents
- Montana Nurses' Association and its District Presidents, and
- Montana Nursing Home Association

Both written and oral comments are solicited.

(4) The procedures used in each of the hearings are presented in Figure 4.

In the second HSP, three separate, statewide hearings were held:

- Chapter 3 - the revised Tertiary Care components - were reviewed at a public hearing in Helena on September 28, 1978

- Chapter 4 - the revised Secondary Care components - were reviewed at a public hearing in Helena on November 15, 1978

- Summary

- Goals, Objectives, and Recommended Actions

- Recommended Review Criteria (when appropriate)

    - identifies criteria in terms of cost, accessability, quality, acceptability, availability and continuity considerations

1.0 Background - defines the subject being addressed, identifies the scope and limitations of the component, and discusses national trends.

2.0 Description of the Current Situation

2.1 Incidence Prevalence and Mortality - presents Montana health status indicators if appropriate and available.

2.2 Current Inventory and Utilization Levels - describes where services are found, their utilization levels and analyzes performance (where possible); identifies problems and gaps in the service.

3.0 Plan for the Future

3.1 Overview - discuss the overall strategy for future development of the service.

3.2 Estimated Need - Estimates utilization levels and need for future services.

3.3 Justification for Exceptions to the National Guidelines - where applicable presents a detailed analysis for exceptions to the National Guidelines.

References

Figure 2

New format for writing
HSP component.

- Subarea Committee Members (103)
- Hospitals (61)
- Presidents of Local Medical Societies (14)
- Nurse District Presidents (20)
- HSA Plan Development Committee Members (9 and 10)
- A-95 Clearinghouse (1)
- SHPDA Staff (3)
- Social Rehabilitatio Service (2)
- Hospital Rate Review Commission (1)
- Montana Foundation for Medical Care - PSRO (3)
- Montana Hospital Association (1)
- Montana Medical Association (2)
- Montana Nurses Association (2)
- Montana Nursing Home Association (1)
- Denver Regional Office (1)

Depending on the subject addressed, copies of components were sent to the following:

- Long Term Facilities (91)
- Health Departments (approx. 30)
- Home Health Agencies (18)

Figure 3 - General Distribution of Initial Draft Components

- The remaining parts of the Plan were reviewed at a public hearing in Helena on December --, 1978

(5) After the hearing(s), the Plan Development Committee meets to instruct the staff on revisions to be made.

(6) The staff rewrites the draft and disseminates it to commentors and members of the MHSA Plan Development Committee. In the next committee meeting, the draft is refined (if necessary) and approved for consideration by the MHSA Governing Board.

(7) At the next meeting of the Governing Board, the drafts are presented for their approval.

The second Montana Health Systems Plan was submitted to, and approved by, the MHSA Governing Board at their January 1979 meeting.

After the Health Systems Plan has been approved by the MHSA Governing Board, it will be sent to the State Agency to present to the SHCC at its next meeting. If changes are called for, they will be incorporated into the Plan and resubmitted to the MHSA Governing Board.

After revisions have been incorporated into the Plan, it will be printed and be given general distribution. This will include 20 copies being sent to the State Library, which will distribute the copies to libraries around the state.

APPENDIX 6

HSA COMMITTEES INVOLVED IN DEVELOPING THE HEALTH SYSTEMS PLAN

- HSA Governing Board
- Subarea Advisory Councils
- HSA Plan Development Committee
- HSA Staff

GOVERNING BOARD

Chairman - Bryce Hughett
V. Chairperson - Sharon Dieziger
Secretary-Treasurer - Jack Dodd

Last Year of Term

John Allen — at Governor's Pleasure
1140 Vallejo
Helena, MT 59601
449-3420/458-9743
Governor's Representative, Consumer, Southwestern, Area 4

Ray Amundson — 1979
1827 Beech Drive
Great Falls, MT 59401
761-3150
Consumer, North Central, Area 2

Robert Bell, DVM — 1978
515 Broadway
Culbertson, MT 59218
787-6682
Consumer, Eastern, Area 1

Phil Catalfomo — 1980
33 Willowbrook Lane
Missoula, MT 59801
728-5411
Professional Schools, Provider, Northwestern, Area 5

Don Danielson, Admin. — 1980
Billings Deaconess Hospital
2813 Ninth Avenue North
Billings, MT 59103
657-4141
Hospital Administrator, Provider, South Central, Area 3

Jack B. Dodd — 1979
P.O. Box 816
Whitefish, MT 59937
862-2819
Consumer, Northwestern, Area 5

Margaret Drummond — 1979
515 North Tenth
Bozeman, MT 59715
586-9165
Consumer, Southwestern, Area 4

Kent Ferguson, Admin. — 1980
Hot Springs Convalescent Center
Drawer U
Hot Springs, MT 59845
741-2992
Nursing Home Assoc., Provider, Northwestern, Area 5

Last Year of Term

Vincent Amicucci, M.D. — 1980
2225 11th Avenue
Helena, MT 59601
442-4315/933-5527
Physician, Provider, Southwestern, Area 4

Phil Auble, Admin. — 1978
Glendive Comm. Hosp. & N.H.
Prospect & Ames
Glendive, MT 59330
365-3306/365-2829
Hospital Administrator, Provider, Eastern, Area 1

John Bunger, Director — at Director's Pleasure
Veterans Administration Center
Fort Harrison, MT 59636
442-6410
V.A. Representative, Provider, Southwestern, Area 4

George Clark, Admin. — 1979
Kalispell Regional Hospital
310 Sunnyview Lane
Kalispell, MT 59901
755-5111/887-2211
Hospital Administrator, Provider, Northwestern, Area 5

Sharon Dieziger — 1979
3604 Fifth Avenue South
Great Falls, MT 59401
761-1200 ext. 2330/453-1525
Montana Nurses Assoc., Provider, North Central, Area 2

Gary Dols — 1979
1120 Broadwater Avenue
Billings, MT 59101
259-1757/252-3275
Chiropractor, Provider, South Central, Area 3

Margaret Eklund — 1978
Ryegate, MT 59074
568-2510
Senior Citizens, Consumer, South Central, Area 3

Charles Fisher — 1978
Montana United Indian Assoc.
P.O. Box 26
Babb, MT 59411
732-4031
Montana United Indian Assoc., Consumer, North Central, Area 2

Last Year of Term

John Fulkerson 1979
P.O. Box 233
Sidney, MT 59270
482-1319
Consumer, Eastern, Area 1

Gloria Heggen 1980
P.O. Box 457
Ekalaka, MT 59324
775-6259
Consumer, Eastern, Area 1

Andrew Hellstern 1978
P.O. Box 368
Hinsdale, MT 59241
648-5598 (neighbor)
228-2494 (Thurs. & Fri.)
Low Income, Consumer, Eastern, Area 1

Evelyn Johnson 1980
430 South Fifth Street West
Missoula, MT 59801
543-6737
Consumer, Northwestern, Area 5

Al Klingler 1980
P.O. Box 488
Shelby, MT 59474
434-2692/434-2252
Consumer, North Central, Area 2

John Manley 1979
P.O. Box 2539
Billings, MT 59103
252-7146/656-5828
Consumer, South Central, Area 3

Pat McCarthy, M.D. 1978
501 West Broadway
Missoula, MT 59801
543-6831/549-6181
Physician, Provider, Northwestern, Area 5

John Loren Mitchell 1980
Rocky Boy Route
Box Elder, MT 59525
395-4478
Billings Area Indian Health Board, Consumer, North Central, Area 2

[illegible]d Morse 1978
Denton, MT 59430
567-2304
Consumer, South Central, Area 3

Kathleen Ramey 1980
1511 1/2 Railroad
Helena, MT 59601
442-2817
Elected Official, Consumer, Southwestern, Area 4

Last Year of Term

Bryce Hughett, M.D. 1979
Mental Health Center
1245 North 29th
Billings, MT 59101
252-5658/248-6001
Mental Health, Provider, South Central, Area 3

Al Kautz 1979
1212 Grand Avenue
Billings, MT 59101
248-1676
Optometrist, Provider, South Central, Area 3

Merrill Kovatch 1978
P.O. Box 177
Conrad, MT 59425
278-5513/278-3866
Consumer, North Central, Area 2

Bob Marks 1980
P.O. Box 116
Clancy, MT 59634
933-5589
Consumer, Southwestern, Area 4

Virgil Miller 1978
P.O. Box 5004
Great Falls, MT 59403
454-1826
Blue Cross, Provider, North Central, Area 2

H.F. Ted Morris 1978
1112 West Third
Anaconda, MT 59711
563-6114
Consumer, Southwestern, Area 4

Penrose Radley, D.D.S. 1978
907 Helena Avenue
Helena, MT 59601
442-4990
Dentist, Provider, Southwestern, Area 4

Mary Alice Rehbein 1980
Richland County Public Health
221 Fifth Street SW
Sidney, MT 59270
482-2207
League for Nursing, Provider, Eastern, Area 1

Anita Richards 1978
P.O. Box 321
Seeley Lake, MT 59868
677-2496
Consumer, Northwestern, Area 5

Herman Schrader 1979
1220 Central Avenue
Great Falls, MT 59401
453-8295
Pharmacist, Provider, Northcentral, Area 2

Last Year of Term

Barbara Schilling 1980
P.O. Box 26
McLeod, MT 59052
932-2396/932-2805
Consumer, South Central, Area 3

Jan Treml 1980
620 Alderson Avenue
Billings, MT 59101
252-5181 ext. 221
Home Health, Provider, Southcentral, Area 3

William H. Walton, M.D. 1980
Pryor Star Route
Billings, MT 59101
252-8403
Physician, Provider, Southcentral, Area 3

Malcolm Winter, M.D. 1979
1817 Bridge
Miles City, MT 59301
232-0790/232-4847
Physician, Provider, Eastern, Area 1

Last Year of Term

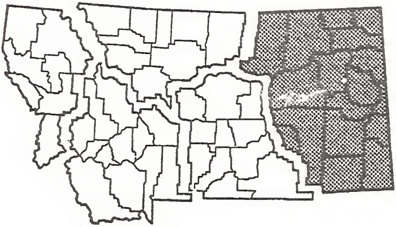
John St. Jermain [illegible]8
Cascade County Commissioner
4611 Second Avenue North
Great Falls, MT 59401
761-6700/452-2838
Elected Official, Consumer, Northcentral, Area 2

Gary Watt 1978
1515 Missoula Avenue
Helena, MT 59601
449-2501/443-4753
Environmental, Allied Health, Southwestern, Area 4

David Wilkins, M.D. 1978
Route 36, Box 85C
Havre, MT 59501
265-9636
Physician, Provider, Northcentral, Area 2

EASTERN MONTANA

Subarea Advisory Council Members



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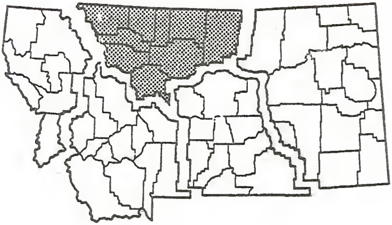
NORTH CENTRAL MONTANA

Subarea Advisory Council Members



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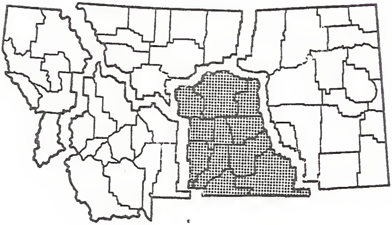
SOUTH CENTRAL MONTANA

Subarea Advisory Council Members



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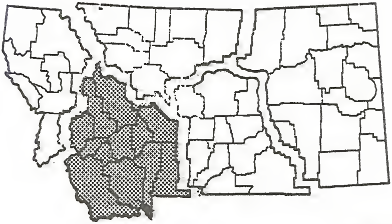
SOUTHWESTERN MONTANA
Subarea Advisory Council Members



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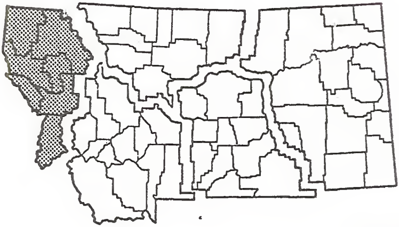
NORTHWESTERN MONTANA

Subarea Advisory Council Members



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